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# INTEGRATED GUIDANCE FOR SHELTER MANAGEMENT

VOLUME I

## INTRODUCTION TO SHELTER MANAGEMENT

A Training Text

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## INTEGRATED GUIDANCE FOR SHELTER MANAGEMENT

This document is one in a series of three volumes designed to aid the shelter manager in meeting his responsibilities in peacetime and, should the need occur, under emergency conditions.

What binds these documents into a unified package is a concept of shelter management. This concept holds that every shelter manager must prepare himself, through training, and must prepare his shelter facility, through planning, to meet any situation requiring the use of the shelter. In addition, the concept holds that the in-shelter performance of the manager will improve if he is provided with guidance materials to support his decision making, no matter how well trained he may be.

Training, planning, and in-shelter guidance, therefore, are viewed as three key features of a shelter management program, and each is represented by a separate volume in the Integrated Guidance for Shelter Management series.

Each document in the set stands as a complete work that can be read and applied independently of the others. However, each volume contains technical information that will not be found in the others. For example, the subject of food is treated in a different fashion in each volume. The training document discusses background factors and management considerations in shelter feeding. The planning guide emphasizes pre-occupancy procedures for establishing a feeding capability in the shelter. The guide for in-shelter use presents a priority-ordered listing of management actions pertaining to shelter feeding. This illustration suggests that, for a shelter manager to derive maximum benefit from the guidance materials, he should consider the document as an integrated package. When the reader approaches the documents as a unified set, the volume numbers reflect the optimum order in which they should be read.

Volume I, Introduction to Shelter Management, has been designed as a training text. It provides an

overview of the scope and nature of the shelter manager's duties and responsibilities. The text emphasizes general management principles and considerations, rather than specific operational procedures. This enhances its utility as an introduction to the topic of shelter management.

Volume II in this set of documents is entitled Planning a Group Shelter. It deals with the peacetime responsibilities of the shelter manager which focus upon the achievement and maintenance of a state of operational readiness of a shelter facility. The planning guide discusses the principal factors that must be considered in planning and developing a group shelter. It also identifies methods for meeting the requirements associated with these factors, and presents specific information that would permit the shelter manager to select methods appropriate to his needs.

The Shelter Manager's Guide, the last volume in the series, has been developed for use during the period of shelter occupancy. This means that the content, as well as its organization and presentation, has been designed for optimum usefulness under emergency conditions. The Guide lists priority-ordered management actions and decisions, arranged according to the phases of a shelter stay.

The selection and recruitment of shelter managers is another key aspect of the shelter management program. Guidance in this area is more appropriately used by those responsible for obtaining shelter managers than by the managers themselves. For this reason, a fourth published guide entitled Selection and Recruitment of Shelter Managers, has not been included in this unified package. The Selection and Recruitment Guide, however, is available through the same channels through which the other guidance documents have been obtained.

## ERRATA

- P. 45, Chapter Title.  
Should read "ORGANIZING SHELTER RESOURCES"
- P. 95, Line 8.  
Should read "Loss of appetite."
- P. 107, Table VII, Type column.  
Should read "Biscuit, Wheat Flour, baked."
- P. 120, Line 5.  
Should read "water supply is adequate."
- P. 160, Line 31.  
Should read "Symptoms".
- P. 160, Line 32.  
Should read "or loss of the use of arms and legs."



## PREFACE

This volume has been prepared for use as a textbook for training shelter managers and other key members of the shelter staff. It has been designed for use in a wide range of training situations. For example, it can be employed:

1. In a normal classroom setting, in which all training is accomplished through lectures and discussion during classroom hours.
2. In a combined-group and self-instructional setting, in which the basic text materials are assigned prior to the classroom sessions. The group sessions, led by a trained instructor, would be devoted to practical exercises and detailed discussions of specific problems of particular shelter types.
3. If need be, in a completely self-instructional manner, in which the student can guide and test himself without the presence of an instructor.

It is felt by the authors of this document that the second approach would result in the most efficient use of training time and instructor personnel, given the current concepts of shelter management training. With the tremendous variation in shelter types, the more time the instructor has at his disposal to deal with the actual shelter problems that his current group of students may face, the better prepared these students will be to meet their responsibilities as shelter managers.

Only by assigning students to prepare themselves in general management guidance before and between classes can sufficient time be made available for classroom discussion of the "real problems of real shelters."

The self-instructional approach is recommended only in those limited cases in which it would be impossible for prospective shelter managers to convene in classroom sessions.

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The content of this training document is limited to the organization and management of a community fallout shelter. It does not describe equipment operation and maintenance, use of monitoring instruments, or other technical details. Other documents dealing with these subjects are available to students.

With few exceptions, this document does not present detailed solutions to problems, even those dealing with organization and management. Specific solutions depend upon the existing conditions and available resources of the individual shelter, and hopefully can be discussed during classroom training sessions. The objective of the basic text is to acquaint the prospective shelter manager with the scope of his responsibilities, with the kinds of decisions he will have to make, and with the factors he will have to evaluate in arriving at these decisions.

The emphasis in this document is on the in-shelter period--that is, from the time of attack warning to the time when radiation levels are low enough to permit exit from the shelter. However, there are many additional management functions that must be carried out in peacetime and in the post-shelter recovery phase. These additional responsibilities are briefly described in Part 7 of the text.

The text is divided into seven parts. The first consists of an overview of shelter management. The second part deals with a key responsibility of the shelter manager--organizing the various dimensions of the shelter system. This is followed by a section on protection of shelterees from threats from the environment, with emphasis on radiological protection. Part 4, "Providing for Basic Needs," discusses the requirements for the physical survival of the human organism, and how these requirements can be met in a community shelter. "Supporting Operations," Part 5, deals with those shelter activities that in themselves are not directly related to survival, but indirectly make it possible for survival needs to be satisfied. The next part considers the problems of the mental well-being of the shelter population. Finally, there is the brief section

on pre- and post-shelter management responsibilities.

At the end of the book, the user can find practical exercises, test questions, and recommended readings, to assist him in mastering the subject matter of shelter management.

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# **OVERVIEW OF SHELTER MANAGEMENT**



**Overview of Shelter Management**

# **CHAPTER 1**

## **OVERVIEW OF SHELTER MANAGEMENT**

### **IMPORTANCE OF SHELTER MANAGEMENT**

In the event of thermonuclear war, the responsibility for the safety and well being of our protected population will rest, in large measure, upon those citizens who bear the title "shelter manager." It is their vital task to provide leadership in the shelter. Without such leadership the goals of physical survival and mental well being of our population will be difficult to achieve.

The importance of leadership to survival has been amply demonstrated by many studies and reports of human behavior under stress. Studies of civilian populations and military units in wartime, studies of the effects of natural disasters, investigations of isolated and confined military units, all lend support to the conviction that leadership contributes significantly to the ability of groups to withstand stressful physical and social pressures. Experimental studies of groups confined in shelters for extended periods of up to two weeks also clearly indicate that competent leadership is a necessary ingredient for the successful achievement of group goals.

There is reason to believe that should war come, the shelter manager will represent, as did previous leaders in previous disasters, the key to survival for an important segment of the population.

### **THE ROLE OF THE SHELTER MANAGER**

#### **The Mission of the Shelter Manager**

The mission of the shelter manager is to return as many shelterees as possible to the post-attack world, physically and psychologically capable of assuming their roles in the recovery and reconstruction of the society.

Physical survival of shelterees is only one part of the shelter manager's goal. It is a necessary, but not sufficient, condition for the recovery of society after



a nuclear war. In addition to bodily survival, rebuilding the society requires strength, will, and knowledge. To the extent that these factors can be provided to the protected population by the leaders of a shelter, they become an essential part of the mission of the shelter manager.

#### **Civilian vs. Military Leadership in the Shelter**

Many people have peacetime supervisory experience that could be put to very valuable use in shelter management in the event of a disaster. In fact, the basic recommendation for selecting shelter managers is to seek persons with civilian supervisory experience.<sup>1</sup>

However, there are several essential differences between civilian leadership and the requirements for successful shelter management that make it unrealistic to equate the two automatically. Some of the important differences are:

1. The scope of leadership responsibility. Normally, in peacetime, a supervisor has responsibility for only certain aspects of a subordinate's behavior, and that for only certain hours of the day. In a shelter, the distinction between public life and private life is virtually nonexistent. The shelter manager must be prepared to deal with every aspect of the lives of all shelterees on a 24-hour basis.

2. Requirements of rapid decision making. Under the wartime conditions in which shelters will be occupied, rapid and decisive action on the part of the shelter manager is a requirement for group survival. Under such circumstances, a number of democratic procedures, in which the population voices its preferences, and a number of peacetime bureaucratic procedures, in which information passes relatively slowly up and down chains of command, have to be bypassed. The shelter manager must be prepared to act as an authoritative leader, making and implementing decisions rapidly.

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<sup>1</sup>Smith, R. W., & Jeffreys, F. B. The selection and recruitment of shelter managers: A technical report. Pittsburgh: American Institutes for Research, June 1965.

Other factors that make shelter management different from civilian management are: (1) emotional reactions to attack and confinement on the part of shelterees, (2) the absence of normal sanctions (the power to reward or punish) in the shelter situation, and (3) the fact that many strangers may be present in a public shelter who are unfamiliar with the management structure of the organization in which the shelter is found.

On this basis, it would seem that a military type of leadership would be more suitable to the shelter situation, in that military leaders have traditionally faced many of the problems described above. HOWEVER, the shelter manager is not a military figure commanding a military unit. His mission is to ensure the survival of the population in his shelter, while maintaining to the utmost possible extent the values and standards of our democratic society. Although a manager may frequently have the legal status of a representative of local government during a nuclear emergency, he has few of the normal sources of governmental power at his disposal in the shelter. His leadership depends upon at least the tacit consent of the shelterees. This means that for practical as well as ideological reasons, his authoritative leadership should not extend beyond those in-shelter situations involving the safety and well being of the group which require unquestioned obedience.

Effective shelter leadership results from a combination of elements of both civilian and military leadership. The mark of the trained shelter manager is the ability to recognize and implement the appropriate leadership style.

#### **Responsibilities of the Shelter Manager**

The responsibilities of a shelter manager are complex, difficult, and in some ways without precedent in our society. Some of the problems that a shelter manager will likely face may never have been experienced before. Other problems, while not unique in themselves, may occur in a shelter on a scale previously unknown. The following list of shelter manager responsibilities should convey some idea of the complexity of the job. It should be noted that many of the

shelter operations and activities described among the responsibilities will not be carried out directly by the shelter manager, but, rather, by members of the management staff or by the shelterees themselves. However, the shelter manager retains the ultimate responsibility for all the plans that are made in-shelter, all the decisions that are reached and implemented, and all the operations that are carried out, regardless of who actually does the work.

It is the shelter manager's responsibility to:

1. See to it that the shelter is filled in a rapid and orderly fashion.
2. Insure that the protective actions against the effects of nuclear weapons, that are within the capability of the shelter, are taken.
3. Develop and implement plans for the satisfaction of basic human needs--a livable atmospheric environment, water, food, sleep, sanitation, and medical care--within the limits imposed by shelter resources and conditions.
4. Establish a shelter organization and a shelter schedule within which to carry out all shelter activities.
5. Maintain order and uphold the social standards of our society.
6. Develop and implement plans for in-shelter training of the population that will enhance their survival capabilities during and after the shelter stay.
7. See to it that the morale and motivation of the shelterees are as high as possible under shelter conditions by developing and implementing plans for religious, recreational, and social activities.
8. Prepare plans for in-shelter emergency situations, and implement plans if necessary.
9. Prepare for both temporary and permanent exit from the shelter.

## **PRINCIPLES OF SHELTER LEADERSHIP AND MANAGEMENT**

For training purposes, it is useful to assign the title "shelter leader and manager" to the person in command of a shelter.

"Leader" in this context refers to someone who has the personal qualities to exercise control over the members of a group, and to motivate them to achieve the common goals of the group. By "Manager" is meant someone who can organize and apply the resources of a group towards the achievement of its goals.

Both "leadership" and "management" are essential functions in the over-all direction and control of a shelter. The extent to which a shelter commander should act as a direct leader or as a "behind-the-scenes" administrator depends upon the size and configuration of the shelter and the needs of the shelterees.

### **Principles of Shelter Leadership**

Among the cardinal principles of leadership of a community fallout shelter are the following:

1. Assume command rapidly. People will take shelter with little information as to what to do and what is expected of them. It is up to the manager to provide this information and, in so doing, to establish himself as their leader. The longer the appointed manager delays in this, the greater the chance that an "emergent leader" will take over, with potentially damaging consequences.
2. Demonstrate authority. It is by his action and not merely by symbols that the manager will demonstrate his authority and capability. During the initial stages of the shelter stay, the manager should stress the readily visible, personal leadership aspect of his position at the expense of some of his administrative duties.

3. Delegate authority. The manager must retain his capability to perceive, evaluate, and make decisions on the over-all shelter situation. Consequently, he can not afford to be unduly burdened with every management detail, and should delegate authority to chosen subordinates.

4. Refrain from personal overinvolvement. In a similar fashion, the manager must avoid being identified with the problems of an individual or group of individuals in-shelter. His concern should be for the welfare of the entire shelter population. Intense interest by a leader in the problems of selected individuals may be harmless or even expected under normal conditions, but in a shelter it can have a negative effect on harmony and morale.

5. Establish a priority of actions. Even after successful delegation of the less important tasks to subordinates, there will remain a series of duties left to the manager--some of greater importance than others. Oftentimes, situations may make simultaneous action mandatory, or two problems will arise whose solutions are in conflict with one another. A list of manager priorities is an important requirement. If possible, a checklist should be prepared to which the manager can refer, especially during the first few days of the shelter stay.

6. Provide an example for shelteree behavior. After establishing himself as the leader in the eyes of the shelterees, he will be looked to for cues on proper behavior. Many adjustments will have to be made in long-established habits and customs and the manager should be a model for appropriate shelter behavior. Also, the knowledge that the leader, himself, is conforming to the new and strange regulations tends to make the adjustment more acceptable to all shelterees.

7. Recognize the changing needs of the shelter population. The condition of the shelter and its occupants will be quite different after a week than it was the first few hours after entry. It is crucial that the manager be aware of the changing needs of shelterees

and adapt his leadership style to meet these needs. See Shelter Phases, pages 8-15.

8. Keep people informed. One of the most important, continuing responsibilities of the shelter manager is to provide shelterees with as much news about the shelter and the outside world as possible, on a regularly scheduled basis. In the absence of information from management, shelterees will manufacture and transmit their own news, in the form of rumors. If left unchallenged, rumors can negatively affect relationships between shelterees, the efficient operation of the shelter, and the authority of management.

9. Recognize the importance of motivation. As almost a summary of leadership principles, it can be stated that the history of human behavior under stress has shown motivation to be a key to the survival of groups under adverse conditions. The manager, by orientation and training, and by the personal example he sets, must generate and maintain in the shelter population a desire to survive and rebuild.

#### **Principles of Shelter Management**

Among the principles of shelter management that are relevant to a wide variety of shelter systems are:

1. Begin organization rapidly. Unless shelter teams are pre-selected and are available, the manager should begin the necessary shelter operations with a temporary staff that can do the job. It is not necessary that he pick the best possible person for each position--speed is essential in forming such teams as the traffic team and a team to operate vital equipment. Replacements by better-trained people can be made later, after the shelter has passed the initial stages of operation.

2. Make a preliminary estimate of the situation. As soon as possible after entry, stock should be taken of both the human and material resources of the shelter. A realistic plan for in-shelter survival cannot be developed without information about the condition of the shelter, its population, and the external environment.

3. Develop a shelter schedule. A goal to strive for is the early introduction of a shelter operations and activities schedule. This serves to establish a rhythm and a pattern to the shelter life, which will be a positive factor in the adjustment of shelterees. The manager, however, should be aware of the probability that the schedule may not function smoothly the first day or two, due to the initial disaster reactions by the shelterees. As a result, some activities that are not essential to survival should be kept from the schedule until shelterees indicate a readiness to accept them. Formal recreation is an example of such an activity.

4. Keep shelterees occupied. A goal of shelter management is to provide as many shelterees as possible with an assigned task to perform during the confinement period. Keeping people occupied at useful tasks is recognized as one of the most effective means for maintaining shelteree morale. The exception to the principle of maximum assignment is in tasks that require trained personnel, such as medical or equipment repair tasks. Even here, however, untrained persons can be recruited to aid the trained staff members.

5. Recognize the need for compromises in management decision making. It will be impossible to satisfy everyone in the shelter. Some people will feel hot at the same time that others feel cool; some people will be thirsty and others not; task teams may be competing for valuable shelter resources such as illumination and ventilation. The manager will constantly be faced with problems requiring "trade-offs" (compromises) between competing or conflicting requirements or expectations. Whenever possible, the reasons for selecting one course of action over other alternatives should be explained to the shelterees concerned.

### **SHELTER PHASES**

The evidence is clear from experimental studies and historical instances of long-term confinement that a shelter stay can be divided into several phases, each with its management implications. However, the strict definition of each phase, its duration, and its

impact upon leadership and the shelter population depends upon knowledge of a particular shelter, its resources, its occupants, and its leadership. Consequently, the following description of shelter phases and their implications for management should be regarded as generalized guidelines that will fit a large number of shelter situations, but not all.

#### **The Entry Phase**

The entry phase extends from the time that the shelter is opened until the population has been received and critical operations have been initiated.

Should the manager arrive at the shelter prior to the general population, he will have time to evaluate the shelter readiness for occupancy, inventory its resources, and prepare himself for the assumption of command. Being there when the shelterees first start arriving will also tend to strengthen his authority, and give him an immediate opportunity to demonstrate his capability.

It is more likely that the manager will arrive during the population movement to the shelter.

In either case, his initial responsibilities are to prepare the shelter for occupancy, assume command and supervise filling of the shelter, and initiate protective actions and start-up procedures.

Because shelterees may be anxious and fearful concerning the attack, the manager should stress the protective capabilities of the shelter and the availability of supplies. Reassuring the population in the face of unknown dangers will require great leadership skill and continual communications between the manager or staff members and the shelterees. "Keep talking! Keep reassuring!" is a cardinal leadership principle in the entry phase.

Should the manager arrive after the bulk of the shelterees, he may be faced with the presence of an emergent leader who has already taken over. Under such circumstances, rather than alienate what leadership has emerged in his absence, the assigned manager



should incorporate this person or persons into the organizational structure that he establishes.

#### **Securing the Shelter**

Under certain conditions, the manager may consider allowing persons into the shelter after its capacity has been reached:

1. When it is known that there are no other safe locations in the neighborhood which persons can be expected to reach in a reasonable amount of time.
2. When the people who are seeking entry to the shelter after its capacity is reached are few in number.
3. When the shelter possesses augmented capabilities in regard to essential resources which can be stretched to accommodate the post-capacity arrivals.
4. When all indications are that a comparatively short shelter stay is expected.

One immediate but temporary solution which may be feasible in many situations is to offer the late arrivals space in the building, but outside the marked shelter area, which might offer protection against radiation. A more permanent solution could later be reached from among the following alternatives.

1. Provide people in less-protected areas of the building with essential supplies from the shelter.
2. Bring them into the shelter if it can be shown that they can be accommodated without endangering the original shelterees.
3. After radiation levels subside, relocate them to a nearby shelter.
4. Send out an emergency team to procure additional supplies for them.

5. Rotate places with volunteers from the marked shelter, to equalize exposure to radiation.

If after having considered the above procedures, there still remain people outside whose admittance will endanger the lives of those already in the shelter, the shelter should be secured, and alternate solutions should be established for accommodating those seeking admittance. This point may be reached when the shelter is filled to its maximum capacity--considering all available supplies and space, or when uncontrolled movement to and from the shelter jeopardizes management control.

The exact procedures for closing the shelter will depend on the type and number of shelter entrances. In most shelters, normal room doors and/or improvised doors of dense materials will be used in securing the shelter.

A security team should be placed in charge of the closing operations. Their duty is to see that the doors remain closed, and that improvised doors are not damaged. In addition, personnel will verbally direct shelterees who cannot be accommodated in the shelter to other shelters or to other portions of the building which provide some protection. Because radiation levels near entranceways may be relatively high, personnel monitoring doors or entrances may have to be rotated.

#### **The Initial Orientation and Organization Phase**

The initial orientation and organization phase may be thought of as the next few hours after shelter entry. It is characterized by two major management tasks:

- (1) preliminary orientation of the shelterees, and
- (2) initial organization of the shelter.

Most of the communication between management and the shelterees in the entry phase is of two kinds:

- (1) supportive, consisting of reassurances to buoy shelteree spirits, and
- (2) directive, commands pertaining to where to go and what to do.

As soon as it is feasible, one or more briefings (depending upon the size and configuration of the shelter) should be held, during which the characteristics and requirements of shelter living are briefly spelled out to the entire population. The details of shelter living can be presented at a later time, perhaps through community group meetings. What should be communicated initially is an outline of shelter requirements and a feeling for what an extended shelter stay will be like. At the same time, communications to the shelterees should still retain the early reassurances, because many shelterees may still be anxious and fearful about their survival chances.

Three things must be organized during the shelter stay: (1) people, (2) resources, and (3) activities and living patterns. To the extent that a shelter has a pre-selected staff, a pre-developed operations plan, and a pre-established schedule of activities, it will have accomplished some of these objectives prior to shelter occupancy. Otherwise, the following initial organization steps must be taken.

1. Organization of shelterees into community groups and selection of essential task teams.
2. Organization of resources in the form of supply inventories and initial plans for the allocation of water, food, medicine, etc.
3. Organization of activities and living patterns in the form of a schedule for the first day's operations, planning for the "permanent" shelter schedule, and the development of a set of shelter rules.

#### **The Initial Operations Phase**

This stage is made up of the first day or two in-shelter. It is the period during which the shelter becomes fully organized, and shelterees begin to involve themselves in the range of activities that constitute daily shelter living. Such activities as feeding, sick call, sleeping, and training are experienced for the first time as planned activities. It is an important period of adjustment for the shelter population. The procedures of shelter living are explained, demonstrated, practiced, and implemented.

Within this period, what may be referred to as a new "definition of the situation" should begin to occur for most shelterees. For one thing, the overwhelming initial concern with the disaster and with immediate survival may, by this time, begin to shift to an orientation focusing upon survival of an extended shelter stay. Secondly, as shelterees enter into the stage of organized group living, their fears about survival in the shelter, and the strangeness and austerity of shelter life should lessen, barring emergency situations.

During this phase, the manager will have to continue his strong personal leadership, for several reasons. The first is to serve as a teacher and a model of appropriate behavior. Secondly, some shelterees may be fearful about their chances for survival, and about the fate of missing relatives and friends.

#### **The Routine Phase**

This period extends almost the remainder of the shelter stay. Most shelterees will have made an adjustment to their environment during this time. The authority of the manager and his staff should have "taken hold" sufficiently so that the manager no longer has to be continuously visible to the population. He can spend more of his time carrying out his administrative duties.

Within the routine phase there may occur temporary dips in morale brought on by monotony and austerity. This mood of lethargy and lack of motivation is quite natural. When it occurs, the manager should provide some variety in the shelter system (for example, permitting new task assignments, introducing new activities, varying the shelter schedule slightly).

It is also possible that periods of heightened activity and agitated behavior may punctuate the routine phase. News from the outside world, or the unplanned emergence of an uninformed, action-oriented rival to the shelter manager, may trigger attempts to "do something besides just sit here."

A significant part of training activities during the routine phase should deal with preparation for post-shelter living. This will give individuals an acquaintanceship with survival techniques. But, more than that, it will lend support to a shift in shelter orientation towards the future. Belief in a future in which the individual can survive and society can be rebuilt is one of the most important lessons that shelterees can learn during their temporary stay in-shelter.

#### **Preparation for Exit**

As the time for leaving the shelter draws near, the mood of the shelterees may likely change. The change will be due to two factors: (1) an impatience to leave the shelter, and (2) anxiety over what they will find when they exit, and what will happen to them after they leave. Leadership should be oriented towards keeping individuals from leaving the shelter prematurely, and in allaying fears about the state of the world outside.

Before leaving the shelter, every effort should be made to communicate with the local control center, primarily to ascertain the radiation levels at various distances from the shelter. Full-time shelter egress should not be the decision solely of the shelter manager, but should be coordinated with the control center.

The problem of an individual who wants to leave before it is safe to do so may arise in-shelter. The manager or a staff member should make perfectly clear to the individual the physical consequences of a trip to the outside and the impact his leaving may have upon the shelter population. The person should be discouraged from leaving. However, if appeals are to no avail, and the person insists upon leaving, he should not be kept from doing so.

Prior to permanent emergence from the shelter, it may often be possible to make brief trips to the outside to replenish supplies, initiate local recovery operations, etc. The temporary exit may also bring positive psychological consequences, by providing first-hand reports of external conditions, as well as welcome, albeit temporary, relief from an extended period of confinement.

### **Post-Exit Shelter Occupancy**

Even after radiation has descended to safe levels, it may still be necessary or desirable to keep community fallout shelters open as temporary centers where people can sleep and be fed during the initial phases of recovery operations. During this transition period, changes in the role of the shelter manager may be expected. Local authorities will assume the responsibilities for maintenance of law and order, mass feeding and shelter, and general restoration of the community. In doing so, however, they may wish to work directly through the shelter manager in use of shelter facilities and the existing shelter organization. The manager and staff, therefore, may be asked to continue as administrators and managers of large groups of people even though their primary leadership responsibilities have been generally fulfilled.

### **SHELTER EMERGENCIES**

A shelter emergency can be defined as: an event which seriously, and oftentimes rapidly, threatens the survival of the shelter population. While it is impossible to specify the exact nature of shelter emergencies, the major causes of such situations can be described. These are: (1) structural damage to the shelter as a result of weapon effects, (2) fire in the shelter or in the surrounding area, (3) dangerously high radiation levels in-shelter, (4) severely high temperatures, (5) imbalances in atmosphere components (extremely high carbon dioxide concentration or presence of other noxious elements), and (6) depletion of essential supplies, such as water.

Any shelter emergency must be evaluated in relation to external radiation levels, leading to three types of command decisions: (1) to combat the emergency situation using the resources of the shelter, (2) to augment shelter resources by sending individuals or small groups from the shelter on emergency missions, and (3) to relocate the population and resources if the shelter becomes uninhabitable. The latter two decisions are discussed as follows.

### **Emergency Missions**

Although the reasons for emergency missions will vary in urgency and type, there are at least four categories of emergency missions which may occur: (1) supply trips for such items as water, medicine, and food; (2) service missions for activities such as decontamination, repair, or recovery operations; (3) voluntary trips, such as medical personnel responding to a shelter call for medical aid; and (4) reconnaissance for availability of critically needed shelter space.

The shelter manager will have to determine the priority for each mission by evaluating the need for the trip versus the risk, which is primarily one of radiation exposure.

One example of a decision which a shelter manager may face is the following. If a shelter has water stored for 50 shelter spaces and the shelter contains 200 persons, the manager may need to find additional water sources while radiation levels are still dangerous, especially if temperatures are high. To decide when to send an emergency water supply team, the manager will have to consider the following factors: (1) how long can the water supply be made to last, (2) how long can people survive without water after it is gone, (3) how close is a probable water source, and (4) how long (how many trips) will it take to get an adequate supply. These factors must be weighed against the risk from outside radiation levels: (1) how much exposure the mission team has already received, and (2) how much more they or other teams should be allowed to receive.

### **Shelter Evacuation**

Evacuation of the shelter should be carried out as a last resort under extreme conditions. Under conditions such as fire (particularly a mass fire), heavy structural damage, or highly inadequate ventilation, the shelter manager may have to evacuate a shelter for other shelter areas to avoid fatalities among shelterees.

If at all possible, a reconnaissance mission should precede general evacuation of the shelter. A team should be sent out to locate alternative areas affording protection.

Except in the case of mass fire in which persons may have to flee from the entire surrounding area, the manager should attempt to find shelter areas in the following general priority: (1) parts of the building adjoining the shelter areas which may offer some protection against radiation, (2) other areas in the same building such as upper floors, (3) buildings adjoining the shelter facility which provide protection in passage from one to another, (4) buildings adjoining the shelter which may require some passage through open areas, and (5) other buildings in the area.

If it is possible to delay the evacuation of a shelter for 24 to 48 hours, the shelterees will receive considerably lower radiation exposure in the process of movement. For example, if a shelter has been so badly damaged that it no longer affords sufficient fallout protection, it may be possible to find better-protected areas in which all shelterees can be temporarily crowded (so long as ventilation does not become a critical problem), even if most shelterees have to remain standing for what appears to be an unusually long period of time. Or, if ventilation in a shelter is extremely inadequate, it may be possible to remain in the shelter temporarily by instituting the most rigid atmosphere and temperature control procedures. Although the above solutions may only be temporary, they might make the ultimate evacuation a safer operation.

Because shelter emergencies will require rapid evaluation and response from management, it is highly desirable that a plan for shelter contingencies be developed prior to shelter occupancy or, at the very least, early in the confinement period. This plan should contain the information necessary to assess an emergency situation, such as location of nearest shelters and nearest stores, the radiation protection in other parts of the building, emergency exits, etc. The plan should also contain alternative solutions to likely shelter emergencies in as much detail as possible.



# **ORGANIZING THE SHELTER**

## **2**

**Organizing the Shelter Population**

**Organizing Shelter Resources**

**Organizing Activities and Patterns of Living**

## **CHAPTER 2**

### **ORGANIZING THE SHELTER POPULATION**

#### **IMPORTANCE OF ORGANIZING THE SHELTER POPULATION**

Man is a social animal who has always joined with his fellows to solve the substantial problems of his existence. There can be no doubt but that in any shelter, under any conditions, attempts will be made by the population at organizing themselves into groups. In all but the smallest shelters, these attempts may be ineffectual in the absence of any guidance or plan, or trained person who can direct the efforts to organize.

The shelter manager's responsibility is to organize people into an appropriate set of groups that combines to form a functioning society capable of achieving the goal of group survival.

#### **IMMEDIATE ORGANIZATION UPON SHELTER ENTRY**

If occupants of a shelter have been organized into groups as part of peacetime preparedness, their organization can start functioning at the time of shelter taking. What of the shelters without pre-occupancy groupings? They must establish some form of organization in the initial period of shelter taking. The cardinal principle governing initial organization is that the organization must fit the requirements of the shelter entry period. In large shelters, it will usually be a good management practice not to attempt to establish the complete network of shelter groups and teams during the immediate entry phase. What is needed at the outset is one (or several, depending upon the shelter) leader(s) to direct the filling of the shelter and the initial protective actions, traffic assistants to aid in filling the shelter, and perhaps a medic, if both the need and capability exist. In a large shelter it would be advantageous if the incoming shelterers could be directed to form rough temporary groupings of 200 or so persons, with each group given a temporary leader. This will facilitate initial communication between the shelter leader(s) and the population.

Within the entry period, as the need for additional teams or groups presents itself (for example, a RADEF team or a repair team), these can be selected on a temporary basis using volunteers with the appropriate skills. It is only after the manager has assumed full command of the shelter and taken care of the initial protective actions that he should begin forming the full complement of groups described in this chapter.

## **TYPES OF SHELTER GROUPS**

There are four basic forms of shelter grouping. These are introduced in the following section, and each type is discussed in detail in subsequent sections of this chapter.

### **Core Management Staff**

Core management is a general term for the members of the management staff who have the major supervisory responsibility for running the shelter. This includes the shelter manager and his key deputies. The larger the shelter, the greater the number and levels of core management that must be incorporated into the organizational structure.

### **Task Teams**

These are relatively small groups whose leaders and members provide the operational, technical, and special services necessary for shelteree survival and adjustment. Specific operations such as feeding, radiological monitoring, and training will be carried out by task teams.

### **Community (Living) Groups**

Community groups are the subdivisions of the shelter population into what might be thought of as the equivalents of families, streets, neighborhoods, and municipalities. The purposes of the living groups are (1) to provide individuals with the gratification they receive from group membership, and (2) to permit management to implement activities and allocate resources more effectively.

### **Advisory Group(s)**

This is a group that acts as a liaison group between the management staff and the shelter population. Composed of representatives from the general shelter population as well as core management, the advisory group functions as a staff body that provides the manager with information and counsel.

## **THE CORE MANAGEMENT STAFF**

### **Size and Composition of Core Management Staff**

For effective command/control, the top management group should remain fairly small, even in large shelters. In a shelter of several hundreds, the top management staff should usually not be more than three or four in number. In a shelter of 1,000 the number of members in the top echelons of management should generally be about half a dozen (the Manager, Deputy Manager, Deputy for Operations, Deputy for Technical Services, and Deputy for Special Services).

In any shelter, it is recommended that at least one member of the top management staff be on duty at all times while people are awake, and on-call while they are sleeping. If the shelter is operating on more than one sleeping shift, it is reasonable to have either co-managers, one in charge of each shift, or one shelter manager and several deputies, each deputy in charge of a shift.

### **Responsibilities, Qualifications, and Recruitment Sources**

See Table L

### **Succession of Command**

It is desirable for the core management staff to agree upon an order and procedure for taking over shelter command in the event of the absence or incapacitation of the shelter manager. An order of succession of command that is recommended for many shelters is:

1. Deputy Shelter Manager
2. Deputy for Operational Services

**Table I**  
**The Core Management Staff**

	RESPONSIBILITIES	QUALIFICATIONS	SOURCES	WHEN SELECTED
<b>SHELTER MANAGER</b>	See page 4.	Previous management experience; stable personality.	Managers, superintendents, executives, and officials.	As soon as possible, preferably before shelter entry.
<b>DEPUTY SHELTER MANAGER</b>	Same as shelter manager.	Same as shelter manager.	Same as shelter manager.	In small shelters, may be delayed until rest of organization is formed.
<b>DEPUTY FOR OPERATIONAL SERVICES<sup>1</sup></b>	Assumes responsibility for such tasks as food, water, sanitation, medical care.	Same as shelter manager.	Staff service heads and middle-level administrators.	As soon as possible.
<b>DEPUTY FOR TECHNICAL SERVICES</b>	Plans and oversees such tasks as radiological protection, communications, safety, maintenance, and supply.	Preferably engineering background; supervisory maintenance or construction experience.	Technical staff heads, engineers, etc.	As soon as possible.
<b>DEPUTY FOR SPECIAL SERVICES<sup>2</sup></b>	Plans and implements shelter training program, recreational and religious activities and special services.	Background in training, educational or social work, plus some management experience.	Training and education director, social work supervisor.	After the entry phase.

<sup>1</sup>Functions may be combined with those of Deputy for Technical Services and/or Deputy for Special Services in small shelters.

<sup>2</sup>In small shelters, the function of this Deputy may be taken over by a community group leader or other member of management staff.

3. Deputy for Technical Services
4. Deputy for Special Services
5. Group leader from the highest level of community grouping

## **TASK TEAMS**

### **Number, Size, and Composition of Task Teams**

The number, size, and composition of task teams are not standard for all shelters but are determined by the requirements of a particular shelter. The two basic questions to ask in forming task teams are (1) have all the tasks associated with the operations and activities of this shelter been assigned to a group, and (2) have as many people as possible been given jobs to do to keep them occupied, and to get them involved in the affairs of the shelter.

The task teams that are described in Tables I & II are recommended for a shelter of about 1,000 persons stocked with OCD supplies. The smaller the shelter, the more the task teams can be combined (e.g., a combined security/safety team, or food/water team). In larger or more complex shelters, more teams may have to be added (e.g., separate food preparation and food distribution teams).

Operations such as communications, fire watch, security, sanitation, radiation protection, and, perhaps, medical care, should be scheduled on a 24-hour basis.

In setting up a team schedule, it may be feasible, in many cases, to assign team members to a relatively brief, daily "tour of duty". One reason for this is to rotate as frequently as possible the less pleasant tasks such as toilet monitoring and the passive, largely uneventful tasks such as the fire watch. Another reason is the goal of providing everyone in-shelter with a useful job to perform.

**Duties, Responsibilities, and Criteria for Selection of Task Teams**  
See Table II.

**Table II**  
**Task Teams**

	<b>DUTIES &amp; RESPONSIBILITIES</b>	<b>SOURCES &amp; QUALIFICATIONS</b>	<b>SIZE/COMPOSITION OF TEAM/ NUMBER OF SHIFTS</b>	<b>SELECTION PRIORITY</b>
<b>RADIOLOGICAL DEFENSE</b>	Maintain protection against fallout by monitoring, decontaminating, increasing shielding, etc. Measure, record, and advise management on radiation, and indicate necessary actions.	Background in science, knowledge of electronic instrumentation, highly desirable. Scientists, science teachers, electrical repairmen, etc.	Size of team ranges from a minimum of 2 monitors per 300-person shelter to a maximum of 5 monitors for 500-person shelters. Monitoring is a continuous activity, requiring a team on duty around the clock.	Should be one of the earliest teams recruited; ideally, team should be pre-selected and pre-trained.
<b>SUPPLY</b>	Storage, security, inventory, and issuance of all shelter supplies.	Supply and parts distributors, warehouse supervisor, manager of a store.	Depends on nature and amount of supplies, location, and supply management procedures.	Immediately after entry, to begin inventorying of supplies.
<b>TECHNICAL OPERATIONS, REPAIR, AND MAINTENANCE</b>	Assess and repair damage to shelters, maintain operability of all shelter equipment, support the radiological team in augmenting shelter protection against fallout, and handle all repair contingencies.	Equipment maintenance and repair experience. Maintenance personnel, engineers, construction men, electricians, plumbers, and building superintendents. Supervisory background helpful.	Depends on complexity of shelter configuration and extent of auxiliary equipment.	Ideally, should be selected before shelter entry, in order to familiarize self with shelter facilities and equipment.
<b>MEDICAL</b>	Responsible for shelteree health, operation of sick bay, control of medical supplies, training shelterees in first-aid procedures.	Licensed physician, dentist, registered nurse, pharmacist, licensed veterinarian, practical nurse, trained medical corps, student of medicine, dentistry, veterinary, first-aid training.	Depends on size and medical needs of the shelter. May need someone on duty at all times.	Immediately after entry, unless team and team head have been selected before entry.
<b>FIRE</b>	Prevent, detect, extinguish fires internal and external to the shelter; train team and other shelterees in fire prevention and fighting, conduct emergency fire drills.	Background in fire prevention or fire fighting. Volunteer firemen etc.	Team size dependent on shelter size and number of shelter areas to be monitored. A fire watch should be maintained in all parts of the shelter at all times. Team can probably use a large number of people on several shifts.	Fire team should be recruited almost immediately after people begin to arrive. Must immediately collect additional shelter fire-fighting equipment in the building and may have to fight fires started from blast effects.

Table II (continued)

	DUTIES & RESPONSIBILITIES	SOURCES & QUALIFICATIONS	SIZE/COMPOSITION OF TEAM/NUMBER OF SHIFTS	SELECTION PRIORITY
<b>SAFETY AND RESCUE</b>	Rescue persons trapped in shelter area; prepare, orient, and drill shelterers on emergency procedures in cooperation with other pertinent teams; support protective actions conducted by the radiological team.	Background in industrial safety, police work, emergency maintenance, or military experience. Plant safety engineers, safety personnel, etc.	Safety team size depends on shelter size and configuration. Rescue team is usually composed of 5 to 8 men.	Should be pre-trained, if possible, or as soon after entry as feasible.
<b>COMMUNICATION</b>	Setup and maintain communication equipment. Monitor and record incoming and outgoing messages. Transmit messages to appropriate shelter management.	If complex equipment available, background in operation and repair of equipment desirable. Electronic technicians, ham operators, engineers, radio dispatchers, etc. Sign graphers, secretaries.	Depends on communication capability and message load; must have person on duty at all times.	Select as soon as possible.
<b>ADMINISTRATIVE</b>	Maintain shelter records, conduct shelter registration, help collect private property, provide administrative support.	Experience in office management. Office managers, executive secretaries, corporate administrative assistants, secretaries.	No formal requirements for size or composition of team.	Should be selected before the shelter registration.
<b>WATER</b>	Inventory, ration, tap, and purify; schedule, distribute, and monitor use of water.	If only OGD survival rations, no special qualifications other than good health. The team head should have supervisory experience. If additional building sources used, may need plumber or repair personnel to assist.	Depends on size of shelter, nature and amount of supplies.	After initial actions completed, but within a couple of hours of entry.
<b>FOOD</b>	Inventory and determine food rations, schedule.	If only (M'D) survival rations, supervisory experience and good health.	Depends on size, complexity of shelter, and nature of supplies.	Several hours prior to first feeding.



Table II (continued)

	DUTIES & RESPONSIBILITIES	SOURCES & QUALIFICATIONS	SIZE/COMPOSITION OF TEAM/NUMBER OF SHIFTS	SELECTION PRIORITY
SANITATION	Set up and maintain toilet facilities; collect and dispose of garbage and waste. Maintain shelter cleanliness, establish personal hygiene procedures. Coordinate with medical in preventive sanitation and body disposal.	Knowledge of preventive medicine and importance of sanitation; knowledge of building sanitation systems; supervisory skills. Sanitation engineer, hygiene teacher, plumbers, building custodian, etc.	Multiple shifts assigned to rotate the responsibility of performing unpleasant duties. Team may be subdivided into toilet team, trash and garbage team, body disposal team, and personal hygiene team.	Early in the occupancy phase.
SECURITY	Direct shelter movement on entry or exit; guard supplies; control outbreak of disorder; guard major offenders who are isolated from other shelterers.	Experience in control of large numbers of people. Police, MP, plant security officer, etc.	Depends on size of the shelter, the extent of actual or potential problems.	Traffic assistance will be needed immediately for shelter entry. Other members of the team should be selected as soon as possible.
NIGHT WATCH	Maintain order in the sleeping area; assist shelterers who require aid; monitor toilet facilities; keep watch for hazardous conditions such as fire; guard shelter supplies; report all serious problems to management personnel.	Team head or member of management staff; team from mature and responsible adults on a rotation basis.	Usually 2 monitors for each 200 sleepers; time of each shift should not exceed 2 hours; number will depend upon emotional state of shelterers, supplies, and equipment to be monitored.	Selected before "lights out."
PSYCHOLOGICAL FIRST AID (In many shelters, may be combined with other special service team.)	To assist emotionally disabled people to return to normal functioning as quickly as possible and to help seriously disturbed to be more comfortable.	Ideally, should have previous training or experience in dealing with emotional problems. Also have adequate personal adjustment in the shelter situation. Psychiatrists, psychologists, social workers, vocational counselors, teachers, or shelter leaders.	As many qualified persons are needed and available should be assigned to this team. First aid will be most effective if one person can be assigned to a single shelterer at a time.	The need for this team should be determined during the first day or two of occupancy.

Table II (continued)

	DUTIES & RESPONSIBILITIES	SOURCES & QUALIFICATIONS	SIZE/COMPOSITION OF TEAM/NUMBER OF SHIFTS	SELECTION PRIORITY
TRAINING AND EDUCATION	Train shelterees for shelter survival and adjustment; teach basic management and technical skills necessary to carry out in-shelter tasks; ongoing education of school children; post-shelter preparation.	Background in teaching. Teachers, training directors, school administrators, etc.	Depends on size of shelter population. Training activity should be interspersed throughout the day.	Chosen as needed in the shelter.
SUPPORT SERVICES	Care for children, elderly, and infirm.	Child-care team should be composed of females with child-care experience; for care of elderly, use mature persons.	No formal requirements; continuous care may be necessary in specific cases. Use as many people as possible.	Set up as needed.
RECREATIONAL ACTIVITY	Plan and implement activities programs, e.g., arts and crafts, spectator entertainment, reading activities, etc. Allocate available recreation material, and improvise additional materials.	Experience in planning and guiding recreational activities, e.g., counselors for youth groups, community welfare center personnel, and playground supervisors and workers.	Depends on size of shelter population, especially the number of children, the amount and type of recreation material, space available for this activity, and shelter temperature.	Set up as needed.
RELIGIOUS SERVICES	Organise, conduct religious services, console and comfort shelterees.	Member of the clergy or religious laymen.	Composition should conform to the distribution of religious affiliations among the shelter population.	Set up as needed.

## **COMMUNITY (LIVING) GROUPS**

### **Types of Community Groups**

#### **1. The Unit. (Group of 7-12 persons)**

The unit is the smallest formally established shelter group. Within the unit, the individual's emotional needs will be fulfilled. It is the group of family, friends, or neighbors who will recognize the individual as a person rather than a face or a number.

#### **2. The Section. (Group of 40-60 persons)**

The section is generally the key community group in a shelter. Like the unit, the section serves the emotional needs of the shelterees by offering group identity and a sense of belonging, though at a less intense emotional level than the unit. In addition to its morale function, the section also occupies a key position in the social structure of the shelter. Its members participate in a majority of shelter activities as a group, including: sleeping, eating, and training. It is the group within which informal methods for social control can develop and operate, and it participates in making democratic decisions about shelter procedures.

#### **3. The Division. (Group of 200-300 persons)**

The division is the level of community grouping that is essential for management control in shelters of 500 persons and over, and may be desirable for shelters of 300-400 persons.

It would be extremely difficult for a shelter manager to coordinate the activities of 1,000 shelterees, organized into 20 sections. However, by establishing four groups of 250 people each, and delegating management authority to the leaders of each group, the shelter becomes more effectively organized. The division leader's function is to plan and oversee the activities of his group in coordination with top shelter management.

#### **4. The Department. (Group of 1,000-1,500 persons)**

In shelters with populations of several thousand it may become quite unwieldy for a manager to interact directly with 10 or more division heads. Therefore, another grouping level will be necessary for over-all management control. This level may be called the department. The term "department" usually refers to a large segment of an organization with a special set of functions. However, in a community shelter, all departments will have similar functions. The term "department" has been selected because of its connotations of size and complexity; no connotation of specialization is intended.

**Duties, Size, Composition, and Selection of Community Groups**  
See Table III.

### **THE ADVISORY GROUP**

#### **Duties and Responsibilities**

The advisory group is the liaison between shelterees and the shelter manager. This group presents the shelter population's problems and suggestions to the manager and assists him in evaluating and resolving group and individual problems dealing with the maintenance of order, morale and motivation, shelter schedules and routine activities, the use of supplies, and other issues involving the shelter population.

#### **Size and Composition of the Advisory Group**

In order to operate effectively, the advisory group should be relatively small in size, with not many more than seven members.

The advisory group should be composed of members elected by the shelterees plus one or two representatives selected by shelter management.

In large shelters, or those in which many of the shelterees are strangers to each other, it may be difficult to elect representatives to the advisory group on any meaningful basis. In such shelters, it may be desirable to delay formation of the advisory group until the shelter has settled into a routine phase.

Table III  
Community Groups

	DUTIES & RESPONSIBILITIES OF LEADER	SIZE & ORGANIZATION OF GROUP	WHEN TO ESTABLISH GROUP	SELECTION OF LEADER	ASSIGNMENT OF SHELTEREES TO GROUP
UNIT	Maintains order and control of group; counsels, advises, and consoles individual shelterees; conveys complaints and problems to the section head; carries out duties assigned him by the section head.	Seven to 12 persons - dependent upon natural grouping of shelterees and size of shelter.	After other groups have been established and leaders appointed.	Should be chosen by unit members, unless they are children or other dependent types.	On the basis of kinship, friendship, and common interests.
SECTION	Has direct operational supervision over group; insures provision of food, water, sleep arrangements, etc.; maintains sanitary standards; supervises shelteree participation in training, social-recreational activities; supervises service activities; maintains communication between shelterees and management; maintains order.	Between 40 and 60 persons - not so large that leader cannot know all members or observe their behavior.	Established first if shelter is small, otherwise, same time as division.	Pre-selected or appointed by division leader prior to community grouping. If all section members know one another, may be selected by them.	On the basis of entry order, or as a result of splitting up already formed divisions. Reassignment should be permitted for reuniting family, friends, relatives, etc.

Table III (continued)

	DUTIES & RESPONSIBILITIES OF LEADER	SIZE & ORGANIZATION OF GROUP	WHEN TO ESTABLISH GROUP	SELECTION OF LEADER	ASSIGNMENT OF SHELTEREES TO GROUP
DIVISION	Generally responsible for well being of division members; delegates direct responsibility to subordinate section heads; plans activities and use of resources; reports directly to core management.	200 to 300 persons - dependent on shelter size and configuration.	Should be first group established if shelter is large and trained leadership exists.	Selected prior to shelter occupancy or appointed by management prior to division formation (based on knowledge of person's qualifications).	Based on time of entry, or formation prior to shelter entry. Re-assignments should take place as necessary.
DEPARTMENT	Exercises command/control over all divisions and sections in his jurisdiction. In many cases, departments may function with almost complete autonomy in regard to daily activities.	1,000 to 1,500. Normally consists of from 4 to 6 divisions.	Should be established as soon as possible.	Same as division leader - should be provided with same training as shelter manager.	Based on time of entry or formation prior to entry.
ADVISORY COMMITTEE	Acts as liaison between shelterees and the shelter manager to present shelterer problems and suggestions to the manager; assists management in evaluating and resolving group and individual problems.	For effective cooperation, committee should not have more than 7 members. Should meet at a specified time each day, with provision for emergency sessions at any time.	Should be selected whenever shelterees are familiar enough with each other to be able to elect committee (either late in initial organization or early in routine phase).	By election of the committee members.	Elected by shelterees, plus appointment of 1 or 2 management representatives.

## **ESTABLISHING A SHELTER GROUP STRUCTURE**

The previous pages have dealt with the description of the various groups that contribute to the operation of the shelter. To allow shelter management to make efficient use of the population resources, these groups must be integrated into a hierarchical organizational structure as represented by the organization charts in Figures 1 through 6, pages 33-38. The goals of the hierarchical structure are: (1) to make clear the channels of communication between different shelter groups and leaders; (2) to identify areas of responsibility for each shelter group and leader, thereby avoiding conflict, duplication of efforts, etc.; and (3) in general, to permit the shelter manager to function effectively by delegating authority to various levels of subordinates, and at the same time to maintain over-all command of the shelter.

### **Factors to Consider in Organizing Shelter Groups**

Just as a small business firm is organized differently than a giant corporation, small shelters should have a different hierarchical arrangement of groups than large shelters. Besides the size of the shelter, other major factors that should be reflected in the organization chart are:

1. The configuration of the shelter (whether the shelter consists of a single space or many physically separated areas).
2. The capability of the shelter (whether it depends solely upon OCD supplies or has extensive augmented facilities).
3. The shelterees (whether everyone knows each other, works for the same organization, or are essentially strangers to each other).
4. The availability of trained management (whether a pre-selected, pre-trained management cadre is available or the management positions will be filled in-shelter with the best people available).

The organization charts in Figures 1 through 6 should be regarded as merely illustrative of the different ways in which differently sized community shelters can be organized.

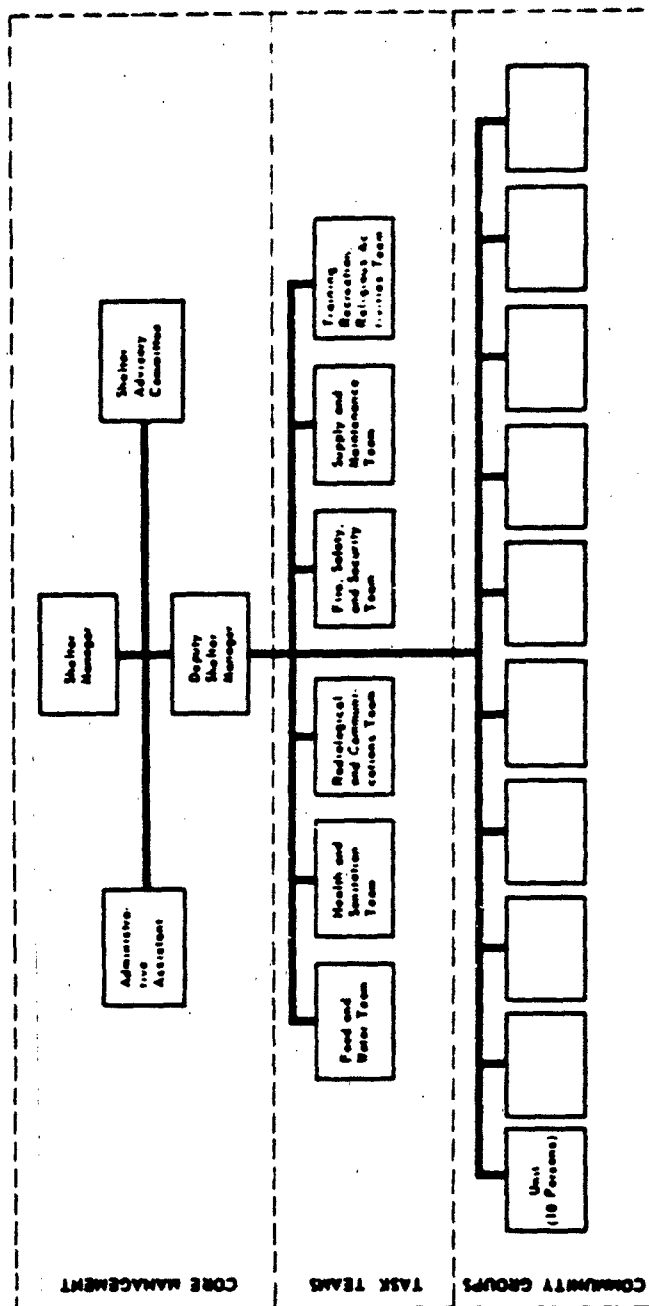


Figure 1. Sample Organization of a 100-Person Shelter



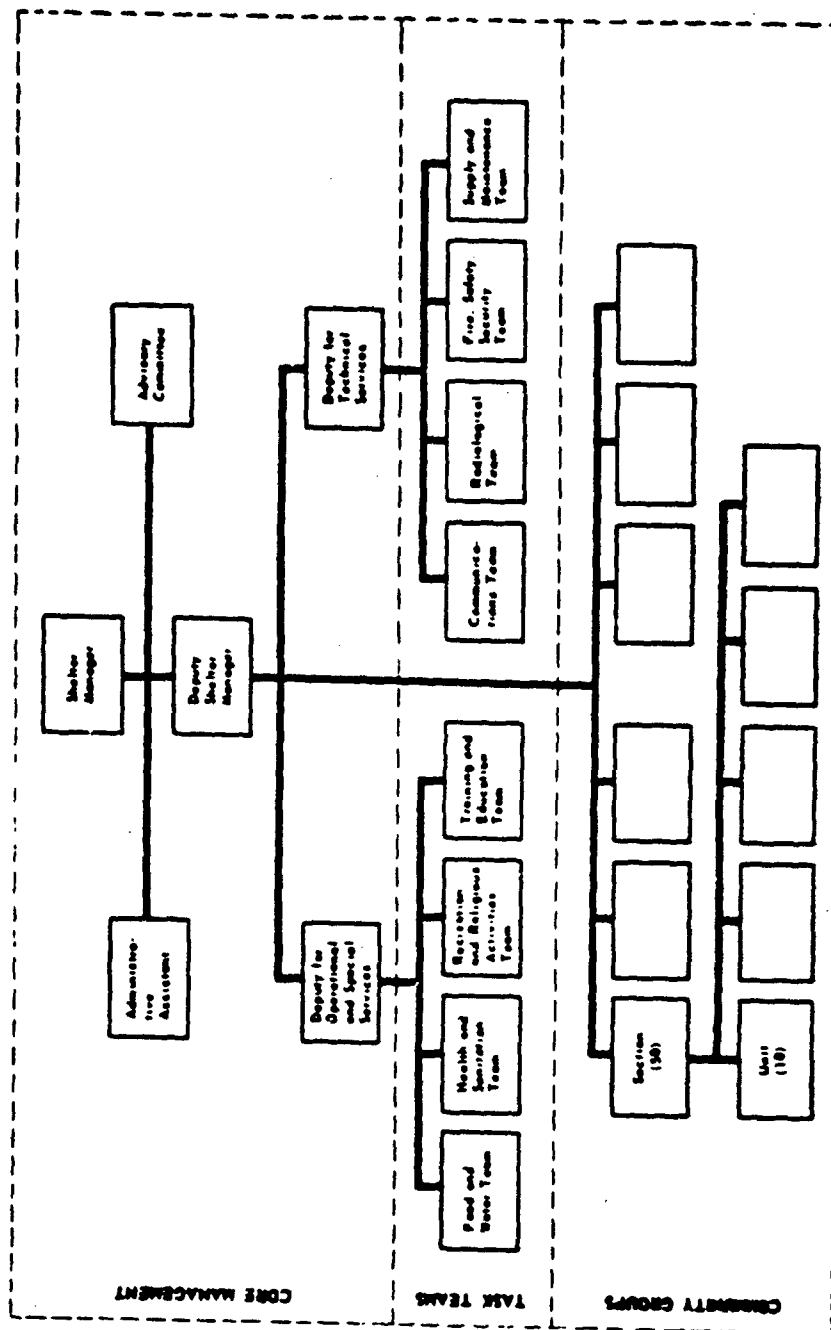


Figure 2. Sample Organization of a 300-Person Shelter

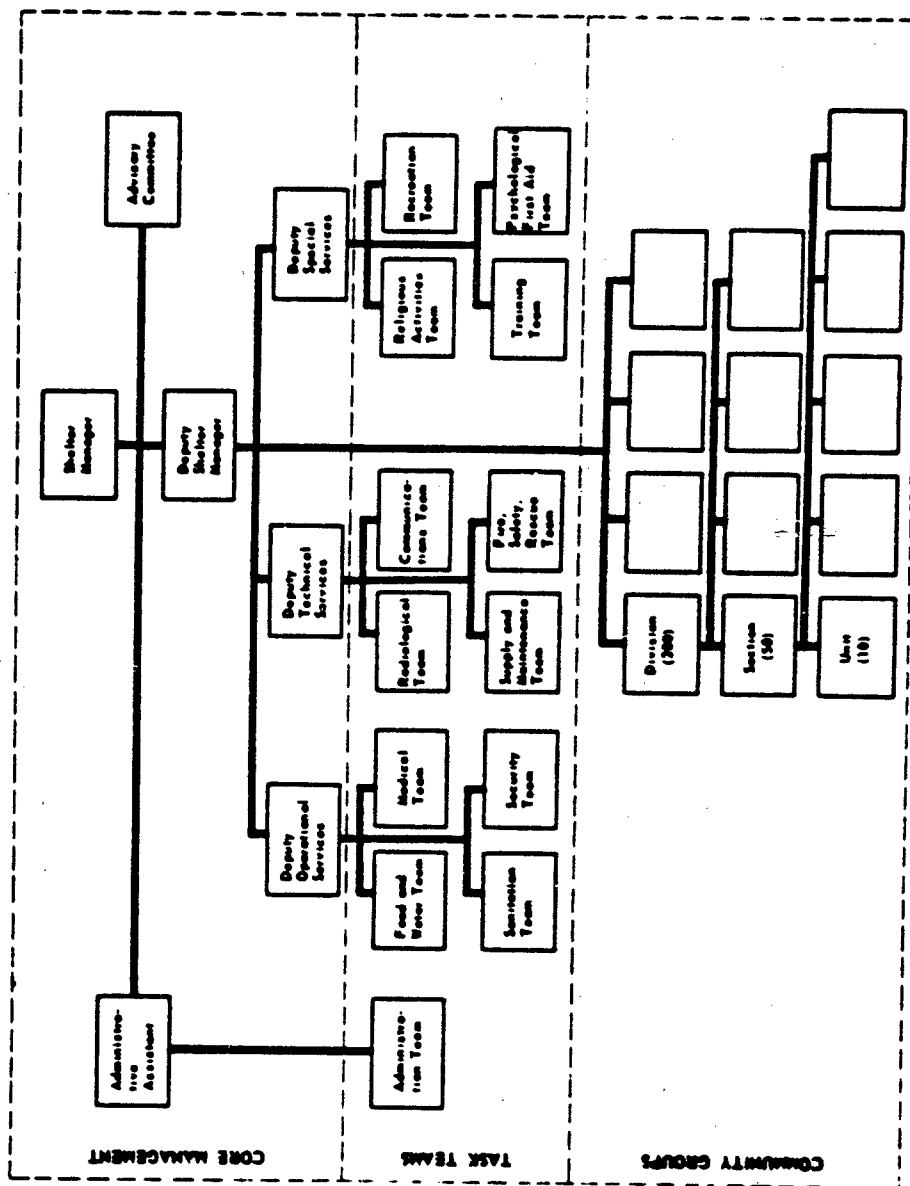
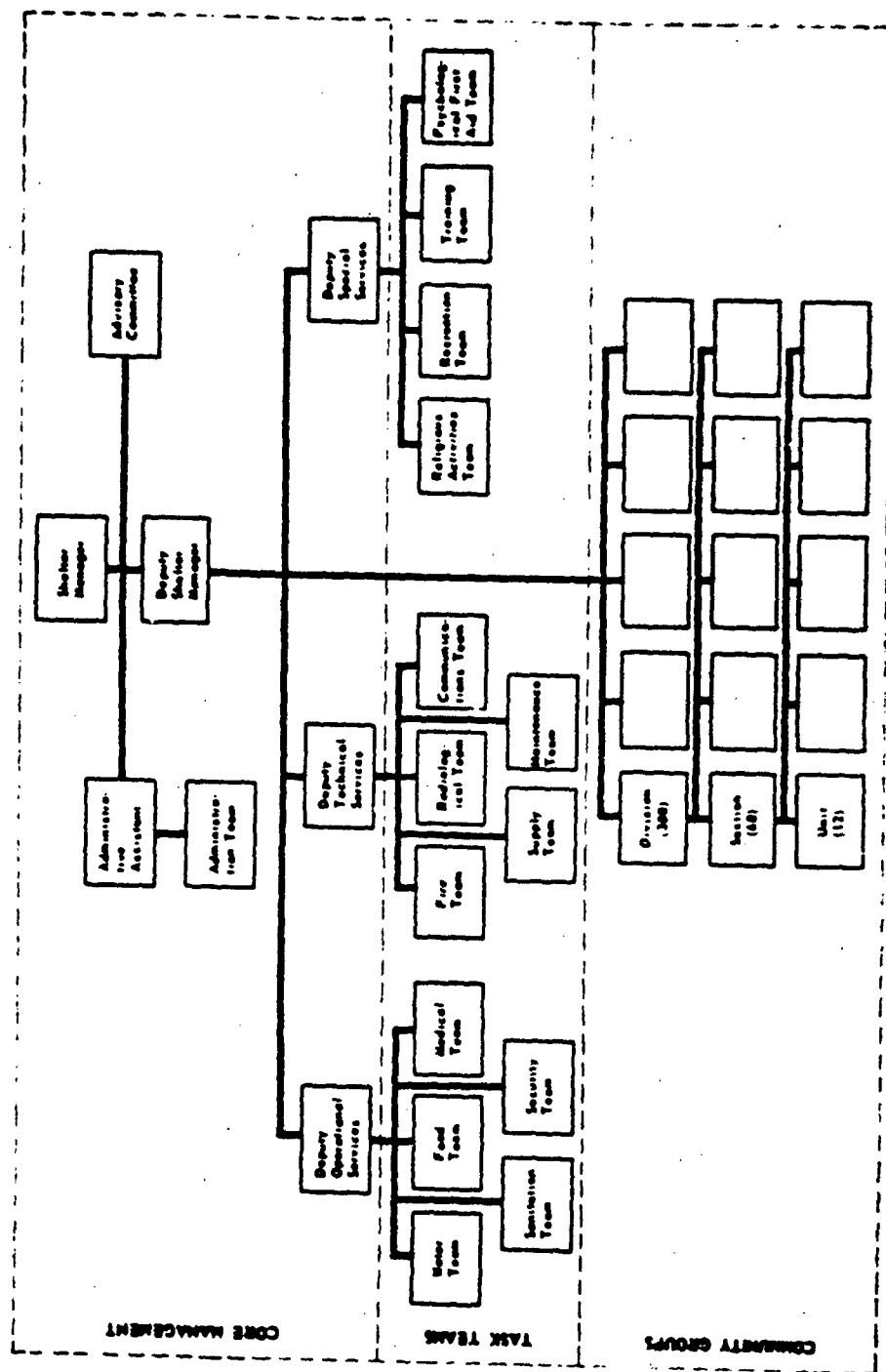
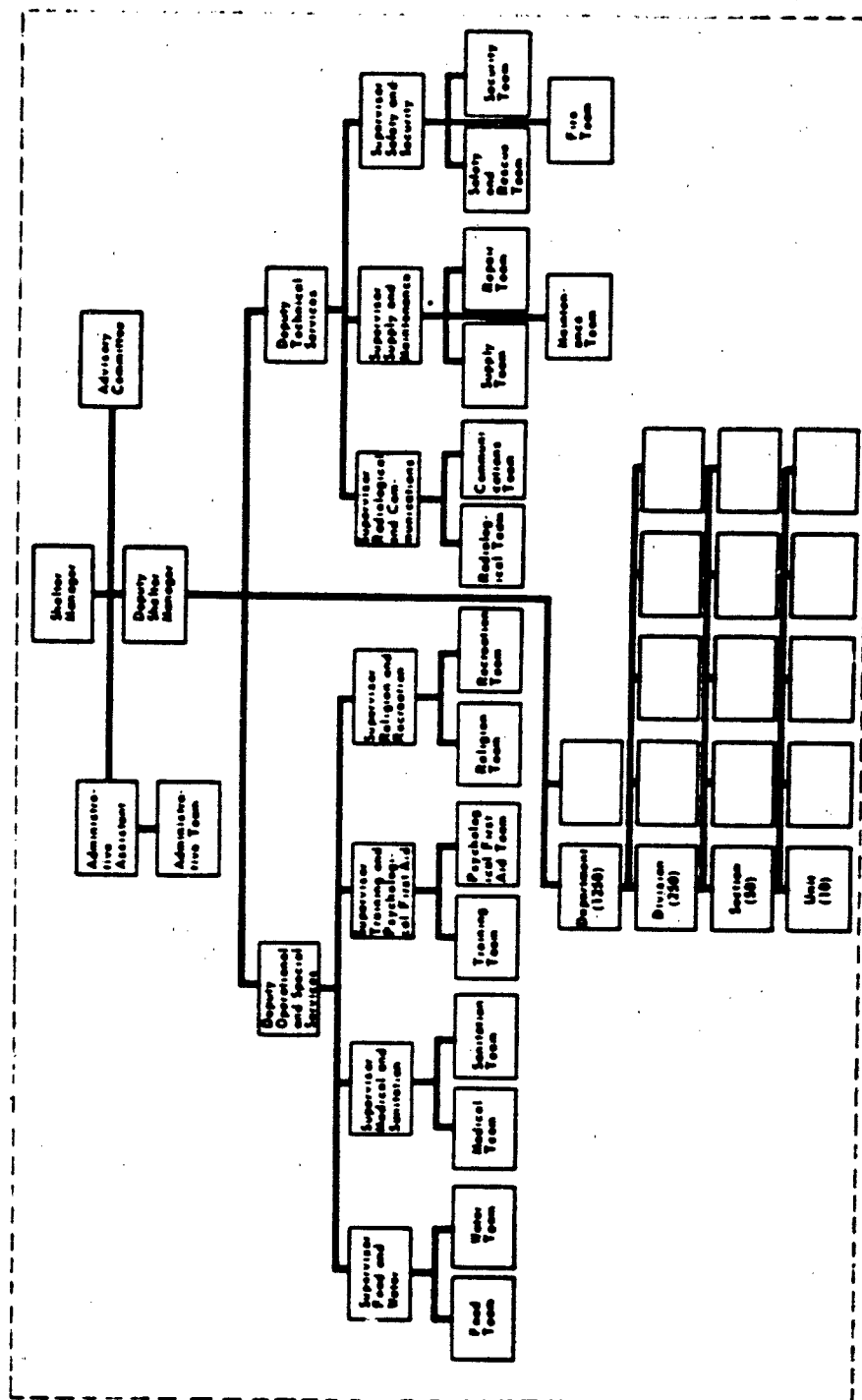


Figure 3. Sample Organization of an 800-Person Shelter



**Figure 4. Sample Organization of a 1,500-Person Shelter**



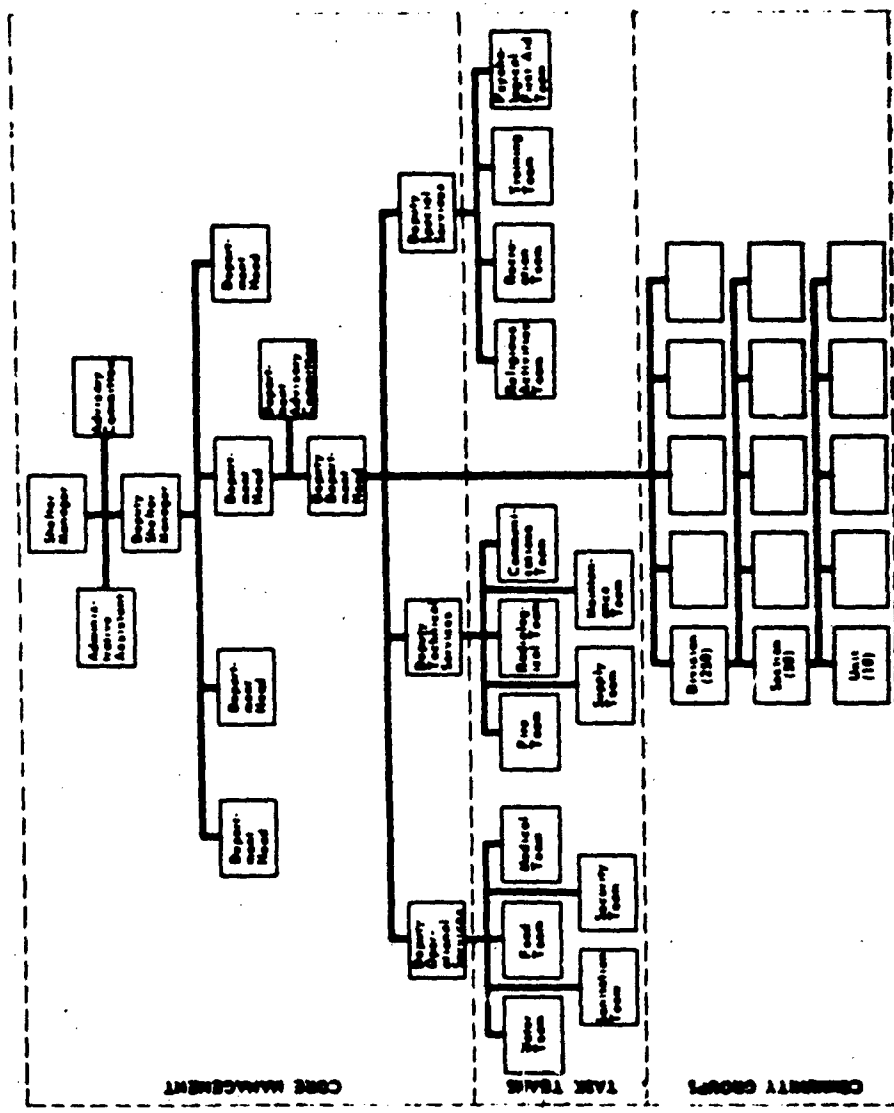


Figure 6. Alternative Organization of a 5,000-Person Shelter (department head functions as submanager, with responsibility for both community groups and task teams)

## **THE RELATIONSHIP BETWEEN SHELTER GROUPS**

Everyone in the shelter will be assigned to community groups. Able-bodied shelterees will, in addition, have an assignment in one of a number of task teams that are separate from community groups.

In organizing a shelter, the question of the jurisdiction of task teams and community groups and the priority of their tasks should be faced to avoid squabbles over responsibility for persons and activities.

### **The Jurisdiction of Community Groups**

The line from the shelter manager through the division and section heads represents the basic line of command in the shelter.

If the manager wants to communicate with an individual shelteree, or wants information about him, the normal approach is through the community group heads. Similarly, if someone in-shelter wants to communicate with the manager, it should be accomplished through the community group heads.

If corrective actions must be applied, they should be the responsibility of community group heads, except in the event of a serious offense, in which case a security team may have to play a role.

A head of a community group is responsible for the members of his group as they take part in shelter activities; that is, as they are fed, as they are given training, as they sleep, and so on. The community group head is not responsible for planning or implementing a particular shelter operation; that is the duty of the appropriate task team.

This point can be clarified by an example. A training session has been planned by the training team to take place at a certain time and place, and to cover a specified subject. Either a member of the training team or an expert (e.g., medical or radiological team member) is to conduct the session. The responsibilities of the section head are to see to it that members of his group attend the training session.

After the training session, the section head may be asked to carry on further discussion of the subjects covered with his group members.

#### **Task Team Jurisdiction**

Generally speaking, the appropriate task team head, or his supervisor in a large shelter, is the responsible person in matters dealing with a specific shelter operation. This covers the internal organization and operation of a task team, and includes such issues as the selection and specific assignment of task team members, the number of persons to be on duty at a specific time, and the length of each shift. When a shelteree is "on duty" with his task team, the team head is responsible for him. Responsibility means knowing where the individual is, and what he is doing.

#### **Coordination Between Teams and Groups**

There are many decisions pertaining to shelter organization and operations that affect both task teams and community groups. For example, to the food team, a certain number of meals served at certain times may appear to be the most efficient way of operating a feeding program. Community group leaders may argue that the feeding schedule that is optimal for the food team is not well tolerated by shelterees, and they may suggest a revised schedule. This pattern can emerge in any number of ways in the shelter.

The ideal solution is to have a shelter operational plan developed prior to occupancy, in which shelter planners spell out the procedures that should be adopted in relation to all operations and activities. But even the most comprehensive plan may have to be modified in the light of actual shelter conditions. Therefore, procedures need to be established whereby jurisdictional disputes between shelter groups can be prevented or resolved.

#### **Reassignment of Shelterees Within Groups and Teams**

Many shelters can expect a good deal of reassignment of people from one community group to another in order to reunite family and friends, or to bring together shelterees with similar interests and backgrounds. The process of initial organization may go

more smoothly if shelterees are told that subsequent reassignments will be considered by management.

Under certain conditions, it may be advisable to consider shelteree reassignment from one task team to another, after a specified "tour of duty" on one team. This would most likely occur in task areas that do not require specialized skills. The purposes for task team reassignment are to insure that some of the unpleasant but necessary shelter tasks get accomplished by rotation of assignments. Volunteers will be procured more easily for unpleasant tasks if they know that they will be reassigned after a period of time. Secondly, reassignment should introduce some variety into the individual's routine and may act, in instances, to perk up shelteree motivation.

### **REGISTRATION AND IDENTIFICATION OF SHELTEREES**

In few shelters will management know all the occupants and have all the necessary information about them with which to organize the shelter efficiently. Therefore, a registration procedure must be implemented to acquire data about shelterees for use in assigning them to teams and community groups.

In addition, all but the smallest community shelters will need some type of identification system, to serve the following purposes: (1) indicate at a glance who the members of the management staff are, (2) possibly indicate the members of task teams who must have rapid, unhampered movement in-shelter, and (3) identify individual shelterees and their community group assignments.

#### **The Shelteree Registration Form**

The shelteree registration form provides management with data on the manpower resources within the shelter, by indicating the distribution of skills and talents. It provides information which can be used as a basis for assigning shelterees to community groups. Finally, it serves as an aid in such recovery operations as location of family members, return of personal property, and population censuses. A sample registration form is presented in Appendix A.



1. Improvising a shelteree registration form. In the event that registration forms have not been stocked in the shelter, shelterees can be asked to write their names, occupations, and special skills on almost any scrap of paper. This will at least allow for rapid organization of task teams. The other types of information on the registration form may be verbally elicited by unit and section leaders in interviews with their group members.

2. Filling out the registration form. In many shelters, registration will be a time-consuming task. Therefore, it may be advisable to divide registration into two periods. Only certain questions pertaining to immediate organization and operations need be answered initially. After shelter groups have been organized, the form can be returned to shelterees for completion.

3. Maintaining the registration form. A major responsibility of the administrative team is to keep shelter records up-to-date and as accurate as possible. Certain vital information should be recorded in the registration form including births, deaths, major violations of rules, heroic actions, and the like. After emergence from the shelter, the forms should be turned over to the appropriate authorities for use in community recovery operations.

#### Shelteree Identification

1. Identification of management personnel. The command capability of the manager and his top staff will be enhanced if they are constantly visible to shelterees. Headgear and/or armbands are the most common symbols of management that are likely to be available to any great extent. Headgear is more effective because it can be more easily recognized in-shelter, but armbands are simpler to improvise, and may therefore be the more popular method of leadership identification.

2. Identification of individual shelterees. Interaction among shelterees is facilitated if people's names are known to others. In addition, identification by name is more satisfying to the individual than is a series of impersonal numbers or letters. If the

shelter contains an adequate stock of tape, each shelteree should be given a piece upon which he can write his name and indicate the groups to which he has been assigned.

In the absence of tape, improvised identification methods can be devised, such as a piece of cardboard attached to a pocket or lapel with a pin, or even an individual's name written directly on an article of clothing with a lipstick, if no alternative presents itself.

# **CHAPTER 3**

## **ORGANIZING SHELTER RESOURCES**

### **THE NEED FOR ORGANIZING SHELTER RESOURCES**

The goal of the shelter system is survival and not comfort. Few community fallout shelters will be stocked with the wide range of material goods to which most of us have become accustomed. The responsibility of the manager is to develop and implement a plan for the allocation and use of the resources of the shelter that will result in survival and well being for the largest number of shelterees. In the event of a short shelter stay, there may not be any major problems regarding shelter supplies. But, in an overcrowded shelter, with a forecast of a long confinement period, the manager may be faced with literally life and death decisions concerning vital supplies.

The impact of shelter resources will not only be felt in terms of physical survival. The manner in which shelter resources are handled by management has great potential effects upon the motivation and morale of the shelter population. Should shelterees perceive that vital supplies are being allocated casually or injudiciously, the result may be hostile words or actions that can threaten the stability of the shelter.

### **BASIC APPROACHES TO SUPPLY MANAGEMENT**

A supply plan that may be ideal for one type of shelter may be very inefficient when applied to a different shelter type. Therefore, the strategy for control of resources must be based upon a consideration of such factors as size and configuration of the shelter, amount, types and location of resources, and estimated length of shelter stay.

There are three general approaches to the supply management program in a fallout shelter. These may be referred to as the (1) centralized, (2) decentralized, and (3) combined approaches. Of all the methods

discussed, the combined approach appears to be the most efficient method for the widest range of shelter types.

#### **Centralized Supply Management**

This approach calls for location of shelter resources in one area of the shelter, under the supervision of the supply team, which issues supplies to the appropriate group and team leaders at the appropriate times.

The attractiveness of this approach lies in its simplicity. Management control of resources is made easier. Less total space is required. On the other hand, crowding around the central distribution area, length of time for supply distribution, and "red tape" involved in issuing supplies may become a problem in large shelters. Centralized supply may be the answer if (1) the shelter is a small, single-room area, (2) all supplies have been placed in a single area prior to occupancy, or (3) floor space is at a minimum.

#### **Decentralized Supply Management**

There are two different decentralized supply approaches. They are: (1) the functional approach, and (2) the area approach. The former calls for locating the supplies dealing with each specific task in a separate place in-shelter under the responsibility of the appropriate task team. Area decentralization involves setting up a number of supply areas in different parts of the shelter, each stocked with the full range of supplies, for a designated segment of the shelter population.

1. Functional decentralization. Using this approach, each task team controls its own supplies. All the supplies associated with the particular task are either brought together to the team area, or the team is located in the supply area. Community group leaders, or individuals authorized to pick up resources, go to a different team area for each type of supply. The task team head is responsible for providing the manager with up-to-date information on the status of his resources.

Functional decentralization results in a rapid distribution of supplies, accurate supply status information, and closer connection between a given type of supply and the shelter team that would use it. On the debit side, this approach might lead to greater shelter traffic, greater difficulty in ascertaining the total supply picture, and greater difficulty in supervising over-all supply operations.

Use of the approach is recommended if separate areas have been provided for each task team, or if different types of supplies have been placed in different areas prior to shelter occupancy.

2. Area decentralization. The approach is basically the same as the centralized method. The only difference is that instead of one central area, supplies are stored at several depots, each serving all the supply needs of a segment of the population.

The approach is recommended (a) where the shelter configuration consists of widely separated areas, floors, or rooms, and (b) where the shelter is extremely large (over 3,000 capacity).

#### **The Combined Supply Management Approach**

This supply management method may be the most efficient approach to the supply problem for the greatest number of shelters. The combined approach incorporates elements of both the centralized and decentralized systems. Shelter resources are kept under the supervision of a supply team at the designated supply area. The supply team gives each task team its quota of supplies at regular intervals, which may be daily, twice a day, every two days, or whatever is determined as necessary. The task team carries the materials to its own location in the shelter, and there dispenses it to individuals or groups.

Each task team keeps records of its own supplies, while the supply team maintains inventory control over all shelter resources, taken as a whole.

The combined approach permits rapid access to the total supply picture in a shelter; it should cut down the supply distribution time considerably over

the centralized approach, especially if each task team can pick up enough supplies at one time to last a day or more. The combined approach also allows the task team to distribute its own supplies, which may lead to a more efficient use of resources.

The combined approach is not without its potential problems. By introducing an additional stage between supplier and consumer, the possibility of supplies being lost, damaged, or misappropriated is increased.

Except in the very large or multi-area shelter for which the combined approach is inefficient, or for the very small shelter for which it is unnecessary, the combined method appears to be the most reasonable approach to supply management.

## **FACTORS TO CONSIDER IN MANAGING SHELTER RESOURCES**

### **Sources of Supply**

The basic material resources of most community shelters will consist of the supplies stocked by OCD, plus any additional survival items that may have been provided by the local community or the building owner. It would be advantageous if additional readily available supplies could be brought into the shelter to augment the survival stocks. Some of the sources of additional supplies that should be tapped by shelter management are described below.

1. The building in which the shelter is located may contain many useful items that can be brought in by shelterees at the time of shelter taking. Examples are: fire-fighting equipment, flashlights and lanterns, food, writing and recreation supplies, fans, and tools.
2. Among the personal belongings that shelterees bring with them are very likely to be many useful items. (See Private Property, pages 53-54.)
3. Improvisation is another source of shelter resources. Many useful items can be fashioned from materials that are available in the shelter. (See page 50.)

4. Sources external to the shelter, such as neighborhood stores, may be used to replenish supplies when radiation levels permit brief trips from the shelter.

#### **Supply Inventory**

As soon as possible after shelter entry, an inventory of shelter resources should be carried out. In large shelters it may not be feasible to perform a careful inventory of all shelter supplies immediately. In lieu of this, the manager should be provided with initial estimates of the amount, type, and location of shelter resources. This should be followed by a detailed inventory after the population is organized.

Initial management decisions concerning the allocation of supplies should be based on the assumption that no additional supplies will be obtained for up to two weeks. Consideration might also be given to the possibility of using the available supplies for a short time in the recovery phase, since the shelter may remain the temporary base of recovery operations.

#### **Distribution of Supplies**

Distribution refers to the process through which resources are made available to the "consumer"--the individual shelteree. There are three major approaches to distributing supplies to shelterees: (1) the fixed-point method, (2) the moving-point method, and (3) the combined method.

1. Fixed-point method. In this approach, individual shelterees go to a fixed supply point to receive their allotment. Fixed-point distribution allows for greater control of resources. However, it also requires much more movement in-shelter. In general, fixed distribution should be considered in small, non-complex shelters, or those with special facilities such as a cafeteria. However, even in large shelters, medical supplies should preferably be distributed by fixed point (patients come to medical area for treatment).

2. Moving-point method. In this approach, a member of a task team or supply team brings supplies to the shelterees in their living areas. Moving-point

distribution minimizes traffic problems and may be considered in shelters in which movement must be kept to a minimum (overcrowded shelters, or those with severe temperature problems). In order to be effective, moving-point distribution requires equipment such as a cart or dolly, to move supplies through the shelter.

3. Combined approach. This method, as the name implies, combines the features of the other two methods. A representative of a group of shelterees (usually a unit head) picks up the supplies for the group from a fixed point and brings them back to the living area where they are distributed to the group members.

The combined approach appears to be the method of distribution that is applicable to the widest range of shelter situations.

#### **Multi-Purpose Use of Supplies**

A major ingredient of a shelter supply program is the effective use of shelter supplies for purposes not originally intended. This refers to purposes that are "in addition to" and not "instead of" the original planned use. Some examples of the multi-purpose use of common shelter resources are listed below.

1. Filled cartons can be employed as building materials to erect a temporary barrier for a separate management, medical, sanitation area, or whatever else is deemed desirable.
2. A large number of filled cartons stacked together may have enough density to provide some radiation protection.
3. Cardboard from empty cartons, placed over metal water drums, can make a seat or table, or even sleeping area.
4. Empty cardboard cartons and metal food containers can be used to collect and store all types of objects, from garbage to personal belongings.
5. A male urinal can be improvised from two five-gallon food tins snugly fit into an empty food carton.



## **SHELTER RECORDS**

Much of the information on shelter resources and events that reaches management will be in the form of shelter records. In addition to the in-shelter use of such records, they will be valuable to governmental authorities after the occupancy period in regrouping the population and initiating the reconstruction activities.

Samples of the shelter records discussed in this section are presented in Appendix A.

### **The Shelter Log**

The shelter log is the document that will contain a listing and a description of all the significant events that occurred during the shelter stay.

1. Description of the log. Any notebook or pad can be used as the shelter log. Because this is a document that will be turned over to the authorities after the shelter stay, it is suggested that the most substantial book or pad available be used for this purpose.
2. Maintaining the shelter log. The task of maintaining the shelter log is one of the key responsibilities of the administrative team. Entries should be limited to such events as:
  - a. Changes in vital statistics (births, deaths).
  - b. Other important medical events (cases of major physical or emotional illness).
  - c. Serious violations of shelter rules and corrective actions applied.
  - d. Major management decisions.
  - e. Daily summaries of shelter status and problems.

### **The Communications Log**

Messages entering or leaving the shelter should be entered in the communications log. This log should be maintained by the communication team, on a 24-hour basis. Separate sheets should be used for incoming and outgoing messages.

### **The Radiation Monitoring Log**

The radiation monitoring log will contain the periodic readings of radiation levels for a given time for specified areas within a shelter, and the accumulated doses for each area.

### **Shelteree Radiation Exposure Record**

This form is used to record daily radiation exposure doses which shelterees may receive.

The record can be utilized in several ways:

1. Radiological monitors and all persons who may be exposed to high radiation should have a personal radiation exposure record. It may be maintained individually or by a clerk assigned to this function.

2. At the discretion of the manager, each shelter occupant can be issued a radiation exposure record. As approved by the shelter manager, persons can be advised once daily through group announcements of their estimated exposure during the previous 24 hours. This may become complicated, however, if the shelterees have been rotated to keep radiation exposure evenly distributed.

3. Before emergence from the shelter, each person should be informed of the accumulated dose he has received through the shelter stay.

### **Medical Records**

A record of all medical events should be kept by the medical team. The names of people with medical problems should be entered, as well as their symptoms and any medication issued. The level of detail in the medical records will vary with the extent of medical problems in a shelter. Under conditions of widespread illness, it will certainly not be reasonable to record every minor medical discomfort.

### **The Supply Status Summary**

In order to allocate shelter resources efficiently and equitably, up-to-date information on the over-all status of the shelter supplies must be provided. The Supply Status Summary serves this purpose.

In addition to the Supply Status Summary for OCD stocks, a similar chart should be prepared for locally provided stocks, and for additional supplies brought into the shelter, where these categories are applicable.

## **PRIVATE PROPERTY**

Everyone will bring personal items into the shelter, if only the contents of pockets and purses. Some people who have prepared themselves prior to the attack may bring in many items of survival equipment and supplies. The materials that shelterees carry into the shelter with them may constitute an important shelter resource.

### **Materials Likely to be Brought into Shelter**

The following represents a partial list of useful items of personal property that can reasonably be expected to be carried into the shelter, without advanced preparation on the part of shelterees: pocket knives, nail clippers and files, pens, pencils, writing pads (especially if the shelter is located in an office building), cosmetics (for use as improvised writing materials), pen-lights, non-prescription medicines (such as aspirins), hair pins, clips, tie clips, portable radios, lighters and matches, handkerchiefs, scarves, belts, ties, and paperback books.

It may be necessary to exclude certain possessions from the shelter, either temporarily or for the duration of the shelter stay. Pets may be a fairly common example of this category. Large bulky items, such as suitcases or trunks, may also have to be excluded from the shelter at least temporarily.

### **Procedures for Dealing with Private Property**

Personal items brought in by the population should not be confiscated from their owners; they should be requested by shelter management and volunteered by their owners. The basis for the request should be the value of personal possessions to the survival of the group. Many people will understand the value of their possessions to group survival without appeals from management, and will volunteer them as soon as asked. Others may have to be shown that, when used

for the common good, an item can contribute more to everyone's survival (including the owner's) than if the owner were to keep it solely for his own purposes.

Even such items as weapons, liquor, and drugs should be requested by management as elements contributing positively to survival rather than as potentially dangerous possessions that may cause in-shelter problems.

A list of specific items of potential value should be made up and communicated to the shelterees. The list should be as broad as possible, so that many shelterees will have something to contribute. If only a handful of people who had the foresight to prepare themselves for a shelter stay are asked to contribute, they may be resistant. However, if there is a broad base of contributions, everyone offering what he has, the resistance may be lessened.

Some shelterees will not want to offer their personal belongings for the benefit of the group. The fact that such items have not been volunteered does not mean that they should not be entered among the shelter resources. It may be possible to allow the owner to retain possession of some items of private property and to use them to carry out group survival activities. An example of this is the possible appointment of the owner of the only radio in the shelter as the communications monitor.

A record should be kept of the possessions that shelterees have volunteered. (See Shelteree Registration Form, Appendix A.)

## **CHAPTER 4 ORGANIZING ACTIVITIES AND PATTERNS OF LIVING**

A shelter stay under emergency conditions will be a strange and frightening experience for the confined population. One of the most potent positive factors in the adjustment of shelterees to shelter living is firm leadership, visibly acting in the group's behalf. One of the important ways in which shelter leadership can be brought home to the population is through the establishment and maintenance of a plan for shelter living. Included as major portions of this plan are a set of rules for shelter living, and a schedule of shelter activities and operations. Rules and schedules serve to inform shelterees what they must do to maximize their survival chances. Shelter living patterns, represented by rules and schedules, also serve to make the future less uncertain by introducing predictability into the shelter situation and indicating to shelterees that the standards of the pre-shelter society will be maintained to the fullest possible extent.

### **THE BASIS OF SOCIAL CONTROL IN-SHELTER**

Every group, from the small family to the entire society, has rules that must be adhered to over the long run by the members of the group if it is to achieve its goals. Social control refers to the ways in which a group maintains order, by establishing rules, communicating them, insuring that they are obeyed, and applying corrective actions in the event of violations.

Because a community fallout shelter during its period of occupancy represents a temporary, miniature version of our society, one can examine the basis for maintaining order in a shelter by comparison with the basis of social control in the larger society.

The rules of a society are of many different types, ranging from the habits and conventions of daily routine living to the deeply held moral principles for which people are prepared to sacrifice everything, including their lives.

The rules of the society are obeyed for a number of different reasons. Because we are taught them from infancy on, many of the important rules have become internalized; that is, they have become part of our way of thinking and behaving. We obey them with little or no questioning, regardless of whether people are watching us or not; regardless of whether, at a given moment, the rules are to our advantage or not.

Rules are also obeyed because of the direct influence of other persons. Other persons include family, friends, authorities, everyone with whom we interact. We conform because we know that in so doing we strike a responsive chord in other persons with whom we associate or wish to associate, and are rewarded by them in deeds or words, or merely by the knowledge that they think well of us.

The influence of other persons upon our conformity to rules is felt in an additional important way. We know how others will respond if we violate the rules. From a look of disappointment to a prison term, the reaction of others to a group member's failure to conform is a factor in maintaining order in any group.

We follow rules for still another important reason. As rational beings, we can frequently recognize that a certain way of doing things will lead us to our intended goal more rapidly, efficiently, or economically. We follow a pattern of behavior because it makes sense to do so.

In spite of the fact that some of the customs and laws are contradictory, archaic, or not enforced, an overwhelming proportion of the population conforms without incident to the rules of the society. All indications are that our system of laws and our patterns of conformity to them will not be shattered by a nuclear attack upon our country. It can be expected that a large majority of the population taking shelter will be pre-disposed to obey the rules of the shelter, for the reasons discussed above.

However, there are factors associated with a disaster that create a potential for social control

problems. These include the immediate danger in which people are placed or imagine they are placed, concern for the safety of loved ones, the belief that nuclear attack represents the end of civilization or of our society, and the unfamiliar and austere nature of shelter living.

Overcoming the potentially disruptive effects of the above-mentioned factors is a major task of shelter management. In brief, the manager's responsibilities are: to construct a social situation within the shelter which insofar as possible is modeled upon the characteristics of the pre-shelter society; to motivate people to behave appropriately by continually reinforcing the "rightness" of democratic values and beliefs; and to sustain faith in the continuing existence of the society and in its capability to recover and rebuild.

## ESTABLISHING SHELTER RULES

### Types of Shelter Rules

Shelter rules can be divided into prescribed rules and elective procedures. Prescribed rules are established by management and should be altered only by management. They regulate behavior that involves the safety and well being of the shelter population. Elective procedures are rules that are determined by the shelterees. A number of questions of shelter living can be left to shelterees for solution, according to their wishes, as indicated by some form of democratic procedure.

Almost every aspect of shelter living should be governed by rules. This includes:

1. Entering and leaving the shelter.
2. All daily operations, such as feeding, sleeping, medical care.
3. The use of all shelter equipment.
4. Many types of personal behavior that are potentially disruptive: use of alcohol and drugs, sexual behavior, fighting, gambling, inappropriate use of supplies, and smoking.

### **Procedures for Developing Rules**

Develop rules early. Wherever possible, specific rules should be made in advance of a shelter problem, rather than in response to it. The early development of a set of rules will tend to strengthen the image of management authority and capability.

Determine whether elective or prescribed rules. As a step in the development of a system of shelter rules, the manager must decide which rules can be left to the determination of shelterees, and which must be established by management.

Consider purpose of rules. The manager must evaluate what each rule is supposed to accomplish. He must determine whether it applies to all or to some shelterees, or whether it is to be in effect at all times or selected times, in all locations or in specified locations.

Coordinate the development of rules. Because of complexity of the shelter system, rules pertaining to one facet of shelter life will have effects upon other aspects of the shelter. A procedure that is required to solve one in-shelter problem may create another problem. The manager and his advisors should evaluate the consequences of a specific rule in relation to other specific shelter rules and to the system of rules as a whole.

Make only necessary rules. The manager should consider whether a formal rule is necessary for a particular shelter problem or whether the informal pressures applied by group leaders and shelterees are sufficient to control the problem.

### **Informing Shelterees about Rules**

Early in the shelter stay, the manager or members of his staff should conduct a general shelter orientation session, at which time the important shelter regulations and the reasons for them should be described.

The various team leaders should be briefed in detail about the rules pertinent to their specific areas of responsibility, and they, in turn, should discuss the rules in all necessary detail with the members of their respective teams.



## MAINTAINING ORDER IN-SHELTER

Developing a set of rules is one management problem; ensuring that the rules are implemented is quite another. The following section discusses some of the issues relating to social control--the maintenance of order--in a shelter.

### Preventing Social Control Problems

One of the best ways of maintaining order is to identify and respond to potential social control problems before rules are actually broken. Although preventive measures will not likely solve all problems of social control, they should lessen the chance of occurrence of major rule infractions.

There are many areas of management behavior that can be directed toward this end. In general, management should communicate to the shelter population the desirability of maintaining, where appropriate, the patterns of behavior that were prevalent in pre-shelter society. In addition, the management staff should communicate to the shelterees the content of, and rationale for shelter rules, and, by their personal behavior, be a model for shelterees to emulate. Items, such as weapons and valuables, which may become the cause of conflict, should be kept under the control of management. Perhaps most important of all, shelterees should be informed of the ways in which they can communicate any grievances or complaints they might have to management before their dissatisfaction reaches a level where it results in social control problems.

### Evaluating the Significance of Rule Violations

Criteria for defining social control problems. Social control problems can be thought of as behavior on the part of one or more persons that jeopardizes the survival and adjustment chances of all or many of the shelterees.

Some violations of the rules are more critical in-shelter than they would normally be. Such problems as disobedience of the rules, hoarding supplies, and general uncooperativeness, may assume greater importance in-shelter than would usually be attributed to them. Other forms of behavior usually frowned upon

will have to be tolerated within limits in-shelter. Scanty dress is one example; lack of privacy, another.

Serious in-shelter offenses. A serious management problem can result from the cumulative impact of minor violations of rules. Under certain conditions, a social control problem will pose a threat to the shelter in spite of the fact that the specific violation may be closer to being a petty annoyance than a criminal act. What makes this a serious situation is the number of people who are violating the rule, and the time and conditions under which they have chosen to do so. For example, if one person on one occasion drinks more water than his ration calls for, it might be considered a minor problem, whereas if a number of shelterees refuse to abide by the rules for water rationing over a period of time, shelter survival may be jeopardized.

The second type of major in-shelter offense is that of the unpredictable, individual, violent act. Certain violations pose grave problems for management, regardless of how infrequently they might occur. A single criminal act, such as murder, rape, or other felony, can instantaneously upset the stability of the shelter.

Evaluating deviant behavior and its effects. If a social control problem arises in-shelter that is more than a personal quarrel between several shelterees, a rapid assessment of the situation must be made. The evaluation should include the following points:

1. What is the nature of the disorder (exactly what is happening)?
2. What are the immediate effects upon shelter survival?
3. What are the apparent causes of the situation?
4. What are the appropriate corrective procedures?
5. How many shelterees are actively involved?
6. Does the situation appear to have an organized basis?
7. If so, who are the leaders and whom do they appear to represent?

8. What is the "mood" of the shelterees who are not actively involved at the moment?

#### **Applying Corrective Actions**

The appropriate corrective action depends on the seriousness of the offense, in terms of group survival. Corrective actions may range from a few words quietly spoken to a minor offender by his friends or relations, to expulsion from the shelter for the most serious offenses. The latter would not necessarily constitute a death sentence, for there are usually other areas of the building in which the shelter is located where the offender could get at least partial protection. Before expelling anyone from the shelter, consideration must be given to the possible damage that the offender could inflict upon the shelter from outside.

There are certain corrective actions that are to be avoided because of their effect on other shelterees. In this category are physical punishment, denial of survival necessities such as food and water, or humiliating penalties such as shaving the head or wearing special clothing or symbols. Above all, in applying corrective actions, the manager must, himself, realize and make it clear to others that he is concerned only with group survival, not with the administration of justice to an individual who has broken a shelter rule.

The administration of corrective actions is the duty of the shelter manager. He may seek the advice of members of his staff, but the responsibility is his. Such procedures as mock trials with shelteree juries determining guilt or innocence are not recommended. This does not mean that the manager should not be advised by members of the shelter staff in the matter of corrective actions. Especially valuable would be the advice of professional persons in the legal field. The manager may also want to sample shelteree opinion, through the advisory committee, before applying corrective actions.

#### **Administrative Considerations in Social Control**

Major violations should be entered into the shelter log. Information about the violation and the offender

should be listed, including the corrective action that was administered by the shelter manager. After the shelter stay, this information should be turned over to the appropriate authorities, who will determine whether further action is necessary.

If communication is possible between the shelter and the control center, the shelter manager should inform the control center of instances of major deviance, and of the corrective actions that have been taken. Before the end of the shelter stay, the manager should coordinate with the control center about the disposition of individuals who have committed serious offenses while in-shelter.

### **THE SHELTER SCHEDULE**

Given the multiplicity of tasks to perform in a shelter, a formal schedule of activities is a requirement for effective management. A schedule also serves a basic purpose for shelterees. It introduces a rhythm, an order, into shelter life; it tells the individual what he can expect and when.

If a schedule is not available at the time of shelter occupancy, it should be developed as soon as possible by the manager and his staff. High-priority activities (e.g., radiological protection, medical care, food and water distribution) should be scheduled very early in the shelter stay. Activities such as planned recreation might benefit by a delay of several days before being introduced into the shelter schedule.

The schedule should not be regarded as a rigid, inflexible guide to daily activities for the length of the shelter stay. Many factors, such as shelter emergencies, heat and/or lack of ventilation, and initial unfamiliarity with duties, may bring about changes in the schedule. In addition, there may be reasons for purposely modifying the schedule to provide shelterees with some welcome variation in the daily routine.

Sample schedules for the routine phase of shelter occupancy are presented in Appendix A.

### **Factors Influencing the Shelter Schedule**

The following points should be taken into consideration in developing a shelter schedule.

1. Short attention span. Under the physical and psychological conditions prevailing in the shelter, it will be more difficult than usual for shelterees to focus their attention upon a person or persons for an extended period of time. Consequently, activities should not be scheduled for periods longer than an hour without short breaks to allow shelterees to stretch and relax. If shelterees appear to be having difficulty in maintaining attention, it may be necessary to schedule even shorter periods of a particular group activity.

2. Spread activities throughout the day. Such activities as training and recreation should not be concentrated in one part of the shelter day, but rather should be blended into the schedule so that morning, afternoon, and evening each contain training and recreation sessions.

3. Schedule training activities when shelterees are most alert. Because of their importance, training sessions should be held when shelterees have the greatest attention span. In shelters with survival food stocks, mealtime and clean-up can be regarded as a relaxing activity. It may, therefore, be desirable to schedule training sessions for adults shortly after meals or break, when shelterees should be rested, and hunger and thirst are not competing for the individual's attention.

4. Naps and daytime rest periods. On the sample shelter schedule, two half-hour nap periods are suggested during "quiet activities" time. There is ample evidence to suggest that adults, as well as children, will require naps. Additional opportunities for naps and rest periods are built into the schedule in the times allotted for certain sedentary activities. Feeding is a good example. Although an hour is scheduled for feeding the entire shelter population, each shelteree will spend considerably less time than that in receiving and consuming his portion of food and water. He can spend the remainder of the hour in rest or quiet activities.

5. Water and biscuit breaks. Several water and biscuit breaks are recommended in the schedule. The food consumed in breaks will be subtracted from the daily individual ration, and does not constitute a caloric bonus. The advantages of food and water breaks are threefold.

- a. The palatability of the survival ration may be enhanced if individuals eat only a few biscuits at a time.
- b. Feelings of hunger and thirst may be assuaged by having a number of small meals at shorter intervals as opposed to eating and drinking larger portions only three times a day.
- c. The "coffee break" as a cultural phenomenon in our society can be carried over to the shelter as a relaxing, cohesion-producing portion of the morning and afternoon.

#### **Factors to Consider in a Two-Shift Schedule**

Some shelters may have to incorporate a two-shift schedule due to lack of space for sleeping. It is important to realize that the two-shift schedule is more than just a one-shift schedule carried out at two different times. Two factors to consider in developing the two-shift schedule are: (1) optimum use of common time (that is, when both shifts are awake), and (2) noise and other distractions -- assign the awake shift to relatively quiet duties while the other shift is sleeping.

# **CHAPTER 5. RADIOLOGICAL PROTECTION**

## **THE IMPORTANCE OF RADIOLOGICAL PROTECTION**

Protection against radiation is the reason for the existence of the fallout shelter system. All other elements of management responsibility are affected by the requirements and restrictions imposed by the activity of radiological protection.

The level of radiation is the major determinant of the length of the shelter stay; it is also highly related to the level of austerity of a shelter stay through its influence on the decision to augment or replenish supplies; it is a factor that must always be given high priority in the assessment of shelter emergencies.

Although major decisions in a disaster should not be made on the basis of the long-range effects of radiation, the manager should be aware of these potential effects both on the individual exposed to radiation and on subsequent generations.

## **MANAGEMENT GOALS**

There are four goals to consider in attaining adequate radiation protection.

One is to locate people away from areas of the shelter that might not provide sufficient protection from outside radiation. Another objective is to retain the people in the shelter until the radiation outside has decreased to an acceptable level. The third and fourth goals are to keep radioactive particles from entering the shelter area and to decontaminate shelterees and/or supplies that have radioactive particles on them and remove these particles from the shelter.

The shelter manager cannot be expected to have all the necessary skills and knowledge to conduct a radiological protection program. However, he must have an understanding of the nature of fallout radiation in order to evaluate the technical information provided by his staff and reach the appropriate command decisions.

To support management decisions and technical operations, the Handbook for Radiological Monitors (FG-E-59), prepared by the Office of Civil Defense, is included in the Federally provided kit of radiological equipment. The Handbook provides basic information about detection, measurement, and reporting of radiation. The reader of this textbook is referred to the Handbook for Radiological Monitors for detailed information on the equipment and the tasks associated with radiological operations in the shelter.

## CHARACTERISTICS OF FALLOUT RADIATION

### The Formation of Fallout

When a nuclear weapon is detonated near the surface of the earth, great amounts of surface materials, such as soil and debris, are drawn up into the intensely radioactive ("mushroom") cloud, where some of the materials are vaporized and others become molten. When sufficient cooling has occurred, the radioactive elements produced by the nuclear explosion become incorporated with the particles of soil, debris, etc. The solid radioactive particles thus formed that descend rapidly to the earth are what is known as "fallout."<sup>2</sup>

The rate at which fallout particles return to earth and the distance they are borne aloft depend upon many factors. One factor is the size of the particles. Larger particles will fall to earth closer to the point of burst than smaller particles. Atmospheric conditions, such as precipitation and wind speed and direction at different altitudes, are also important factors. The characteristics of fallout are also determined by the type of burst and the characteristics of the weapon that was detonated.

Because of the variation in the above-mentioned factors, it is extremely difficult to describe the exact fallout patterns that will result from a nuclear

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<sup>2</sup> Although fallout is also produced by nuclear explosions in the air or on the water, the greatest fallout problems by far stem from nuclear detonations on the surface of the earth.



explosion. The area of fallout danger from a single nuclear explosion might cover several hundred miles downwind, a few miles upwind, and tens of miles crosswind.

A distinction is often made between early (local) fallout and delayed (or worldwide) fallout. Early fallout consists of those particles which reach the earth within 24 hours after a nuclear weapon burst. It is early fallout against which the shelter system is designed to protect the population. Delayed fallout returns to earth as late as months or years after the explosion, and is largely an ingestion hazard rather than an external exposure hazard.

It is important to understand that fallout is not a mysterious, invisible, or unrecognizable substance that strikes without warning. Fallout particles look like sand or dirt, and they accumulate on surfaces in the same manner as sand or dirt.

#### **Types of Radiation Produced by Fallout**

The danger from fallout is due solely to the radiation that it emits. Three types of radiation are given off by radioactive fallout: alpha particles, beta particles, and gamma rays. The amount of alpha radiation is insignificant, and is therefore not a consideration in shelter management. Beta particles are not very penetrating (for example, they cannot penetrate heavy clothing). Biological damage from beta radiation would occur only if the fallout material is ingested or (in the first day or so after the burst that produced it) is allowed to remain for some time on the skin or hair. The most serious threat to man from fallout comes from gamma radiation. Gamma rays are very much like X-rays. They are highly penetrating and can pass through matter, damaging or destroying living cells.

#### **Estimating the Decay of Radioactivity**

Radioactivity diminishes or decays at a specific rate through a natural process which cannot be altered. This decay rate is expressed by the term "half-life," which is the period of time that it takes for the radiation rate of a radioactive element to decrease to half its initial value. For example, iodine 131, with a half-life of eight days, loses one-half of its radioactivity

in this time, half of the remaining radioactivity in the succeeding eight days, and so on. Almost 200 radioactive elements are found in varying amounts during a nuclear explosion, each with its own "half-life," ranging from a few seconds to many years. The over-all decay rate of fallout results from the combined radiation decay rates of all these elements.

The rate of reduction in the radiation level of a particular quantity of fallout is determined by many factors, about which sufficient information would not be known to civil defense officials at the time of an attack or shortly thereafter. Therefore, it is convenient, for planning purposes, to use a rough approximation of the rate of radiation reduction, known as the "7/10 rule." Provided that fallout is completely down, it can be assumed that the radiation dose rate will decrease ten times for every sevenfold increase in time after the nuclear blast. For example, if all fallout had accumulated, and if the radiation dose rate had been 300 Roentgens<sup>3</sup> per hour (300 R/hr) one hour after blast, it would decrease to about 30 R/hr seven hours after the explosion. In approximately two days after the blast (7 x 7 hours), the rate would be about 3 R/hr; and in approximately two weeks (49 x 7 hours), the rate would be reduced to about .3 R/hr. If the duration of the shelter stay must be estimated in the absence of radiological monitoring instruments, a conservative initial estimate of two weeks should be made.

## EFFECTS OF FALLOUT RADIATION

### Radiation Sickness

Radiation sickness is the result of accumulated exposure to radiation. Its effects vary from barely detectable symptoms to death, depending upon: (1) the total dose absorbed by the body, and (2) the time interval over which the dosage is accumulated. For example, an acute dosage received in less than three days of about 600 Roentgens over the whole body will

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<sup>3</sup>See page 74 for definition of Roentgen.

probably result in death for 90 per cent of those so exposed, while the same dosage evenly spread over a year's time will cause no serious illness, although some longer-term effects might occur.

It must be emphasized that radiation and radiation sickness are not contagious. Radiation is emitted by radioactive particles. Once these sources of radioactivity are removed or shielded, the threat of further exposure is removed or reduced. Radiation sickness resulting from exposure before the removal of the radioactive material can in no way be transferred or caught by other shelterees.

### **Symptoms and Effects of Radiation Sickness**

Table IV presents an approximate indication of the effects of radiation on human beings.

### **Procedures and Guidelines**

It may be very difficult to diagnose radiation sickness for two reasons: (1) the short duration of initial symptoms, and (2) similarity between symptoms of radiation sickness and those of other illnesses and emotional reaction. It may also be difficult even for medical personnel to determine the severity of the case, because of the similarity between symptoms of moderate and severe radiation sickness.

Persons in the 200 to 1,000 Roentgen exposure range will create maximum patient load and will require treatment for a considerable length of time. However, the shelter manager may not be faced with the main task of caring for many victims of radiation sickness, because a latent period of several days to a few weeks exists between the onset of initial symptoms and the appearance of the secondary but more severe effects.

Little beyond symptomatic treatment of radiation sickness will be possible under shelter conditions. Present Federally stocked medical supplies will be of limited use in treating the major symptoms of radiation sickness. Some general procedures for the treatment of radiation sickness are included in the medical guidebook stocked in the OCD medical kit.

**Table IV**  
**Expected Effects of Acute Whole-Body Radiation Doses<sup>4</sup>**

ACUTE DOSE (ROENTGENS)	PROBABLE EFFECTS
0 to 50	No obvious effect, except possibly minor blood changes.
80 to 120	Vomiting and nausea for about 1 day in 5 to 10 per cent of exposed personnel. Fatigue but no serious disability.
130 to 170	Vomiting and nausea for about 1 day, followed by other symptoms of radiation sickness in about 25 per cent of personnel. No deaths anticipated.
180 to 220	Vomiting and nausea for about 1 day, followed by other symptoms of radiation sickness in about 50 per cent of personnel. No deaths anticipated.
270 to 330	Vomiting and nausea in nearly all personnel on first day, followed by symptoms of radiation sickness. About 20 per cent deaths within 2 to 6 weeks after exposure; survivors convalescent for about 3 months.
400 to 500	Vomiting and nausea in all personnel on first day, followed by other symptoms of radiation sickness. About 50 per cent deaths within 1 month; survivors convalescent for about 6 months.
550 to 750	Vomiting and nausea in all personnel within 4 hours from exposure, followed by other symptoms of radiation sickness. Up to 100 per cent deaths; few survivors convalescent for about 6 months.
1,000	Vomiting and nausea in all personnel within 1 to 2 hours. Probably no survivors from radiation sickness.
5,000	Incapacitation almost immediately. All personnel will be fatalities within 1 week.

<sup>4</sup>Taken from Textbook for shelter management instructor, Chap. 1, p. 9. Battle Creek: Department of the Army, Office of Civil Defense Staff College, undated. (SC-1-50 4132)

For personnel engaged in emergency activities during and after the shelter stay, the total exposure should be kept below 200 Roentgens during the first month of operation. Additional exposure should be less than 25 Roentgens a week for the next five months.<sup>5</sup>

## THE BASIS FOR PROTECTIVE ACTIONS AGAINST FALLOUT

### Protection Factor

The degree of protection against radiation which a fallout shelter provides is called its protection factor. This term expresses the relative reduction in the amount of radiation that would be received by a person in a protected location, compared to the amount he would receive if he were unprotected.

$$P. F. = \frac{\text{Unprotected Radiation Dose}}{\text{Radiation Dose in a Protected Location}}$$

For example, if the radiation dose is 1,000 Roentgens in the absence of protection, and the radiation dose in a protected location is ten Roentgens, the protection factor of that location is 100.

The Federal Government is presently stocking shelters with a protection factor of 40 or greater. Although protection factor is a useful concept for shelter planning, it should be remembered that it represents an average figure. A single shelter may contain spaces with widely varying protection factors. The shelter manager should know not only the protection factor of his shelter, but also the areas of greatest and weakest radiation protection.

### Types of Protection

Protection from fallout radiation may be achieved in two major ways: barrier (or physical) shielding, and distance (or geometric) shielding.

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<sup>5</sup>Handbook for Radiological Monitors, p. 20.

Barrier or physical shielding. Gamma rays are emitted in all directions from an individual piece of fallout, and they can travel many feet through air. Gamma rays can be most effectively reduced in intensity by placing enough mass between the radioactive material and the person being protected to absorb or stop all or part of the rays.

Generally, the denser the shielding material, the greater the protection that is offered. For example, 20 inches of concrete will provide shielding equivalent to 30 inches of earth. This amount of shielding gives a protection factor close to 1,000. The above discussion of shielding is not meant to be all inclusive, because the actual protection afforded by a structure also depends upon considerations beyond the scope of this introductory text.

Distance or geometric shielding. Another type of protection is provided by distance, or geometric shielding. A person who is 20 feet away from fallout will receive less radiation exposure than a person who is 15 feet away from the same fallout. For maximum protection, shelterees should be placed in an area most distant from the surrounding sources of radiation.

## **PROTECTIVE ACTIONS AGAINST FALLOUT**

### **External Protection Procedures Prior to the Arrival of Fallout**

Under certain conditions, simple tasks performed outside the shelter prior to the arrival of fallout can provide added fallout protection for exposed parts of ground-level or below-ground shelters. These tasks should be performed only if (1) there is little probability of blast during the time the work team would be outside the shelter, (2) the procedures employed can actually increase the protection of the shelter, (3) trained or knowledgeable personnel are available to carry out the actions.

The procedures consist of piling earth or sand (loose or in bags) against windows, doors, and other openings (not the ventilation outlets). Also useful for this purpose are building materials (e. g., concrete

blocks) which may have been set aside for emergency protection, or which may be normally available.

#### **Internal Protection Procedures Prior to the Arrival of Fallout**

Those openings which have been strengthened on the outside with sand, dirt or building materials may be strengthened on the inside with the same materials. In addition, shelterees should be directed to shield doors, windows, and other exposed areas with available dense materials, such as book cases with books in them, filing cabinets, and other heavy office equipment. In the absence of other materials, cartons of shelter supplies may be stocked up against openings for protection.

Unless a shelter facility has special plans for augmenting radiological protection, only simple protective actions should be considered. In implementing protective actions against fallout, care should be taken to avoid increasing the hazards to shelterees from the effects of blast. So, for example, shelterees should be kept at a distance from cartons or other materials that have been stacked in front of openings.

#### **Internal Protection Procedures After the Arrival of Fallout**

The shelter should be surveyed to find the safest locations for shelterees. Ideally, these should be areas with dose rates below two Roentgens per hour. If feasible, all persons should be moved into these areas until the radiation has been lowered by decay or until other areas are declared safe by monitors. This period could last as long as 24 to 48 hours.

If lack of space prohibits locating the entire shelter population into areas offering the highest protection, management should consider rotating personnel to distribute exposure evenly, if there is a difference of ten Roentgens between the lowest and highest exposure doses received by the best and least protected occupants of the shelter. In general, a manager should consider providing the best protection for pregnant women, children, and persons who will serve on emergency missions.

If radiological readings cannot be made, shelterees should be located in areas next to walls which are below ground level. In a tall building, the population may be located in the center core at least two stories below the roof, ledges, roofs of other buildings or annexes, and two stories above the ground level, as well as in basement areas completely underground.

## FALLOUT RADIATION MONITORING

The tasks of radiation monitors are to measure, record, and report radiation doses and dose rates.

The activity of monitoring serves several functions in the shelter. The monitors will provide the shelter manager with information which can enable him to make the appropriate decisions concerning shelteree protection. In addition, monitoring provides the shelter population with tangible evidence that shelter management is implementing protective activities on behalf of the shelterees. Finally, monitoring represents a useful task that shelterees can be trained to perform. Both the training and the actual monitoring will contribute towards keeping people occupied during the shelter stay.

### Basic Terms and Concepts

The basic information about radiation required by the shelter manager falls into two categories: the measurement of total accumulated exposure to radiation (dose measurement), and the instantaneous rate of exposure (dose rate measurement). A simple analogy may be made between these measurements and the measurement of travel in a car. The reading on the odometer, or "total mileage accumulated" meter in a car, is analogous to the dose measurement; and the reading on the speedometer, or "rate of travel" meter, is analogous to the dose rate measurement.

Gamma radiation exposure is measured in units called Roentgens.



Instruments designed to measure total radiation exposure dose accumulations are called dosimeters. Dosimeter readings are expressed in Roentgens. Instruments designed to measure radiation exposure dose rates are called survey meters, and their readings are expressed as Roentgens per hour.

#### **Monitoring Information Needed for Management Decisions**

In general, the shelter manager needs the following basic information: (1) time of arrival of fallout, (2) measurable radiation in-shelter, and (3) emergency information. An in-shelter radiological emergency is defined as a situation in which the dose rate is ten Roentgens or more per hour, or an exposure dose within a two-day period is 75 Roentgens or more. This indicates that the maximum allowable dosage may be reached if no remedial action is taken.

#### **Monitoring Equipment**

Because the human senses cannot detect the presence of radiation, radiological instruments must be used to determine the current rate and accumulated amount of radiation at a given location.

The Office of Civil Defense has provided monitoring equipment in all Federally stocked shelters. The equipment is described in detail in the Handbook for Radiological Monitors. The instruments of primary importance are:

1. The CD V-715 survey meter. This is a high-range gamma survey meter for general operational use. It will be used by monitors for much of the radiological survey work following a nuclear attack.
2. Dosimeter. Personnel who must work in contaminated areas require instruments to keep them continuously informed of their exposure doses. The dosimeter serves this purpose.
3. The CD V-750 dosimeter charger. The charger is used to read and charge civil defense dosimeters.

A standard 1.5-volt flashlight cell is used as the source of electrical power.

#### **Monitoring Procedures and Guidelines**

Specific monitoring procedures are described in the Handbook for Radiological Monitors.

Frequent readings in several areas of the shelter should be made.

All shelter openings, particularly door and window areas, should be checked. If the intake for a ventilation system is near occupied areas, it should also be monitored regularly.

Everyone entering the shelter after fallout has begun to descend should be inspected for the presence of radioactive particles on his person, clothing, and belongings. It is not necessary to use RADEF equipment to accomplish this. Visual inspection will generally be adequate to detect fallout particles on one's person and belongings. A similar inspection procedure should be followed with food brought into the shelter after fallout has arrived.

A record of cumulative group exposure should be kept, as well as individual dose records for those on authorized emergency missions. These records will assist the manager in deciding who can leave the shelter, for what reasons, and when.

If a shelter does not have operable radiological equipment, the following guidelines may help to determine the arrival of fallout. In the daytime, either a white plate or white cloth may be placed in an exposed area outside the shelter door. Fallout will be visible on it. If it is nighttime, a flashlight beam will illuminate fallout as it descends. These are poor procedures at best, and should be considered only in the absence of alternative detection methods. Without operable equipment or an external communication capability, the shelter manager will have no way to detect radiation rates.

## DECONTAMINATION

Decontamination refers to the reduction or removal of radioactive fallout from an area, object, or person.

Decontamination may be accomplished by (1) removing fallout from locations where it constitutes a hazard, (2) reducing the amount of radiation emitted by covering the material, or (3) isolating the contaminated material until time and weathering can make it safe to remove.

Most in-shelter decontamination can be carried out without special facilities, using the simple procedures described in the Handbook for Radiological Monitors.

It is important for the shelter population to understand that the presence of fallout particles on a person or object does not make him or it radioactive. Removal of the fallout particles removes any possible radiation hazard to others from the formerly contaminated person or object.

### Personnel Decontamination

If inspection reveals that a person is contaminated, simple decontamination procedures should be instituted.

Combs and brushes may be used effectively to remove radioactive particles from personnel and their clothing. If such items are not available, brushing off particles with the hands is an acceptable substitute. Brush off shoes, and shake or brush clothing at the entrance of shelter area. Brush, wipe thoroughly, or wash contaminated portions of the skin and hair.

### Area Decontamination

If small amounts of fallout penetrate a shelter opening, they can be swept out much as sand might be. Any attempt to remove a considerable amount of fallout material from a large area in the shelter may result in considerable radiation exposure to decontamination personnel. Therefore, unless there is an

immediate, important need for the contaminated space, it is preferable to isolate the area rather than carry out active decontamination procedures.

#### **Food and Water Decontamination**

OCD supplies of food and water stocked in the shelter will not require decontamination. Should inspection of other food and water supplies reveal the presence of radioactive particles, simple remedial procedures should be followed. In general, fallout on food should be treated much as any grit or sand that one might encounter on one's food, at the beach for instance. The normal tendency would be to remove as many of the grit or sand particles as possible before consuming the food item. The same procedure should be adopted in dealing with fallout.

The appropriate management principle may be stated as follows: If food is contaminated, remove as much of the fallout as is feasible from it. If non-contaminated food is available, consume it first. If all the available food is contaminated, and shelterees are hungry, serve this food after decontaminating it as thoroughly as is feasible.

The management principle for dealing with contaminated water is identical to that for fallout on food: (1) Serve uncontaminated water first, if available. (2) Apply simple decontamination procedures to water which contains fallout particles. Filtering water through paper towels or layers of fine cloth is one approach. Allowing water to stand until fallout settles to the bottom and then siphoning off the uncontaminated upper layer is another. Boiling or chlorination will not remove contamination. (3) Serve water, if it is potable from a medical standpoint, even though it may contain some radioactive particles.

Because water is vital for survival, it is important that the manager not deny water to the shelter population in the name of radiological protection.

## RADIATION LEVELS AND SHELTER EXIT

Brief trips from the shelter and permanent emergence from confinement should be coordinated with the local control center. In the absence of any external communication, the guidelines for permissible exit activities under different radiation conditions, presented in Table V, should be evaluated by the manager in reaching any decision pertaining to shelter exit.

In planning permissible exit activities, based on Table V, it is important to take into account the age of the fallout. If for example, an external reading of 2 R/hr was obtained after one day in the shelter, it would mean that the total radiation exposure of the shelterees would be much less than if a reading of 2 R/hr was initially obtained only after a week in the shelter. Consequently, in the former instance, the rules for permissible external activities can be relaxed somewhat; whereas, in the latter case, they should be made more stringent.

**Table V**  
**Suggested Limits for Shelter Exit**

IF INTENSITY HAS FALLEN TO: (In R/hr)	RECOMMENDATIONS
Less than 0.5	No special precautions necessary, except to sleep in the shelter.
0.5 to 2	Outdoor activity (up to a few hours per day) tolerable for essential purposes. Eating, sleeping, and all other activities should be conducted in the best available shelter.
2 to 10	Very short periods (less than an hour per day) of outdoor activity are tolerable for the most essential purposes. Shelter occupants should rotate outdoor tasks to minimize total doses. Rescue, repair, communication, and exercise may safely take place in less than optimum shelter.
10 to 100	Time outside of shelter should be held to a few minutes and limited to those few activities that cannot be postponed for at least one more day. Insofar as possible, all people should stay put in the best available shelter no matter how uncomfortable.
Greater than 100	Outdoor activity of more than a few minutes may result in sickness or death. The only occasions which might call for moving are: (1) risk of death or serious injury in present shelter from fire, collapse, thirst, etc. and (2) present shelter is greatly inadequate — might result in fatality — and better shelter is only a few minutes away.

## CHAPTER 6. OTHER WEAPON EFFECTS

### BLAST

The blast from a nuclear explosion accounts for a high amount of devastation in the area surrounding the point of detonation.

In most community shelters, it will not be feasible to initiate active protective measures against blast effects during the period of shelter occupancy. However, it is still important that the manager be aware of blast effects so that he can avoid carrying out shelter activities that might increase the hazards to the in-shelter population, should the facility be subject to damage from blast. In addition, some managers will be in positions where they can implement simple procedures to increase protection against blast.

#### Characteristics of Blast

Immediately after a nuclear explosion, a wave of hot, compressed air will move outward from the fireball at a little faster than the speed of sound.

The wave, accompanied by devastating winds blowing away from the blast, will envelop and squeeze objects in its path with pressures in excess of normal atmospheric pressure.

At a point when the pressures and wind speed decrease to normal, a suction effect will be caused by air rushing in to fill the vacuum created by the fireball. Pressures will drop to below normal and winds will blow toward the detonation. Although pressure will quickly return to normal, winds may continue for several minutes.

The effects of blast are devastating within a limited radius. The range of effects depends largely upon the size of the weapon and the type of detonation. The range of blast damage from an air detonation may be 30 to 40 per cent greater than from a surface detonation of the same size bomb.

### **Effects of Blast**

Damage to property. Buildings may buckle, blow apart, or sustain lighter degrees of damage, depending upon such factors as size of weapon, distance from burst point, material, construction, and shape of the building.

Even if a building housing a shelter is damaged by blast, the shelter itself may remain intact and provide radiation protection with few or no repairs.

Damage to personnel. Injuries from blast can stem from many causes: (1) over pressure, which can damage internal organs, rupture eardrums, etc.; (2) flying missiles, such as debris, glass, etc.; (3) physical displacement, in which the person is hurled through space, and (4) miscellaneous causes, such as ground shock, dust, etc.

### **Protective Actions Against Blast**

The protective actions mentioned in this section are intended for shelters that have not been constructed to withstand blast. Discussion of protective actions in blast shelters is beyond the scope of this document.

Because hastily constructed barriers within the shelter can increase the hazard to shelterees, it is recommended that no internal makeshift blast-protection procedures be adopted.

In ground-level or below-ground shelters, barriers such as an earthenwork or sandbag wall can be thrown up outside and in front of the shelter opening. Inside the shelter, sandbags and earth may be piled against those shelter openings also protected on the outside.

## **INITIAL NUCLEAR RADIATION**

Initial nuclear radiation consists of the gamma rays and neutrons produced during the nuclear explosion and within one minute after it. The characteristics of initial radiation will not be considered here. If a person is within the range of a fatal dose from initial radiation, the blast and thermal effects would be so destructive



that survival would probably be impossible except in an underground blast shelter, which would also offer some protection against initial radiation.

## **THERMAL EFFECTS**

### **Characteristics of Thermal Radiation**

A good deal of the energy released by a nuclear weapon is in the form of thermal radiation. This refers to thermal pulses which travel from the fireball at the speed of light. Thermal radiation is capable of producing a great deal of damage and a large number of casualties.

The following illustrates the destructive potential of thermal radiation: An air burst of a one-megaton weapon can set fires up to a distance of nine miles, cause burns to persons up to 12 miles away, and cause eye damage at greater distances. A surface burst can ignite fires up to six miles away and cause burns up to a distance of approximately eight miles.

The effects of thermal radiation are greatly influenced by a number of environmental factors. Most important among these are: (1) the nature of the combustible materials present in the environment, and (2) weather and climate (clouds, smoke, and haze all serve to attenuate thermal radiation, and moisture content significantly increases the ignition threshold of easily combustible materials).

### **Effects of Thermal Radiation**

The effects of thermal radiation, which are important to note here, are burns and fires. Thermal radiation from nuclear weapons can cause burns on the skin and damage to the eyes of exposed personnel, and scorch, char, or ignite combustible substances.

Burns directly caused by thermal radiation are called "flash burns." Flash burns generally occur on areas of exposed skin, such as the face, arms, hands, and legs. These burns are usually less severe than flame burns, which may be caused when thermal radiation ignites combustible materials.

Another effect of the thermal pulse is flash blindness, or temporary loss of vision from the extreme brightness of the flash. Although persons who look directly at the flash may receive permanent damage, most persons will see an indirect flash and will likely suffer only temporary damage.

Fires which may result either from direct or indirect effects of a nuclear detonation may cause heavy property damage.

#### **Protective Actions Against Thermal Radiation**

Because thermal radiation does not penetrate solid, opaque material, closed fallout shelters will offer considerable protection against flash burns. To insure protection, closed doors and covered windows will be necessary, although the latter may create a potential fire hazard if drapes or blinds are used.

### **MASS FIRES**

#### **Causes of Mass Fires**

Fires which burn out of control may spread into a mass fire. The spread of the fire depends upon several factors, including the number of points at which fires will originate, the character of the surrounding area, terrain, and weather. One type of mass fire which may occur under certain limited conditions is a firestorm, which originates from many separate but simultaneous fires. The superheated air from these fires is sufficient to create strong air currents which cause air from outside the fire area to be drawn in, creating an intensely burning fire.

#### **Protective Actions Against Mass Fires**

In the event of a mass fire, the shelterers may face several problems: carbon monoxide, superheated air, and extremely high temperatures. Unless the shelter has the capability of being sealed for a minimum of several hours, it is possible that the shelter may have to be evacuated if a mass fire seems likely to envelop the area. For more information about protective actions against fires, see Chapter 7.

# **CHAPTER 7. SAFETY**

## **THE IMPORTANCE OF SAFETY ACTIVITIES**

During the course of a shelter stay, the structural integrity of the shelter and the safety of its occupants can be threatened by many environmental conditions. Some of the potential hazards are associated with the weapon effects discussed in the previous chapter. Some threats may be independent of weapon effects (e.g., a fire in-shelter caused by carelessness). Shelters that contain safety and repair equipment and personnel trained in their use will have more alternatives in combating environmental threats, and will require a well-developed plan for conducting safety activities. However, even in shelters that have little or no equipment, some form of planning is necessary to allow the manager to select the best course possible in an emergency situation.

In the event of actual or threatened structural damage to the shelter, the manager will have to make several vital decisions.

1. Can protective or corrective actions be taken in time to maintain the integrity of the shelter against fallout?
2. If this cannot be done, should the shelterees be relocated, or should the actions be continued with the realization that some of the shelterees may receive high doses of radiation?
3. What information should shelterees be given and what instructions issued so that they can help, or at least not hinder, the necessary operations?

## **MANAGEMENT GOALS**

The objectives of a safety program are: (1) to develop and maintain a capability to combat specific environmental threats, such as fire; (2) to organize the various teams and special groups that may be necessary as part of the safety program; and (3) to prepare shelterees, through information and training, to respond appropriately to shelter emergencies.

## **FIRE PREVENTION AND CONTROL**

The goal of fire safety is to prevent fires from starting in the shelter and to extinguish all fires in-shelter and within the structure housing the shelter.

### **Causes and Effects of In-Shelter Fires**

Fire prevention will have to deal with several types of fires: (1) those caused either directly or indirectly by the nuclear weapon, or (2) in-shelter fires unrelated to weapon effects, caused by smoking, heat-producing devices, flammable elements, or spontaneous combustion.

Fire can affect a shelter, its equipment, and inhabitants through: (1) flame damage; (2) the effects of smoke, toxic fumes, or oxygen depletion; or (3) the toxic actions of certain kinds of chemical fire extinguishers.

In addition to the above physical effects, management may face a serious problem of uncontrolled response to fire by shelterees, which can cause needless damage, injuries, or death.

### **Fire Prevention and Detection Procedures and Guidelines**

As soon after shelter entry as feasible, management should emphasize the importance of fire prevention and instruct shelterees in the fire regulations that will apply.

The second step should be an inspection of the shelter to locate and dispose of fire hazards, such as old papers and oily rags.

A general fire watch should be established to observe all possible sources of fire. Instruments such as smoke detectors and heat sensors will seldom be found in a shelter. Therefore, a fire watch is the most practical approach for fire detection. A fire watch consists of a number of shelterees who are assigned regular fire-monitoring shifts to inspect given areas of the shelter. The number of people on fire watch depends upon the size and configuration of the shelter, but at least one person should be on this watch at all times.

Certain items should be given special attention in a fire-monitoring program. Among these are exposed shelter wiring, shelter machinery, oxygen containers, volatile substances (such as fuel, solvents, and cleaning agents), and any flammable debris.

After a fire watch is organized, the emergency exits should be noted and shelterers drilled in evacuation procedures.

Restrictions may have to be imposed on smoking and the use of highly flammable materials. It may be desirable to establish a special smoking area away from flammable material, preferably near a ventilation exhaust, and containing sand pails or other suitable containers for matches and cigarette butts.

#### **Fire Suppression Equipment**

Fire-fighting equipment is not being stocked at present by the Office of Civil Defense. However, dry-chemical fire extinguishers and pails of sand or water placed in stirrup-type water pumps are recommended by OCD.

Many buildings will have portable extinguishers, which can be collected and brought into the shelter at the time of shelter taking. The extinguishers should be placed in strategic and accessible areas, near equipment, smoking areas, and other sources of potential hazards.

#### **Fire Suppression Procedures and Guidelines**

There are three basic methods for putting out fires. They are: (1) removing the fuel, (2) taking away the air, and (3) cooling the burning material below the point of combustion.

Table VI will indicate some common types of material which may be available for putting out specific types of fires.

Whatever method is employed must not endanger shelterers by the release of smoke and/or toxic gases as a result of the extinguishing procedure. Certain types of extinguishers may be dangerous, and should not be used in small rooms or other confined spaces

with limited ventilation. This includes carbon dioxide, carbon tetrachloride, and bromotrifluoromethane extinguishers. If no other extinguishers are available, however, a calculated risk will have to be taken with their use.

Table VI  
Common Fire-Fighting Materials

TYPE OF FIRE	POSSIBLE EXTINGUISHING MATERIALS	COMMENTS
Wood, paper, cloth or rubbish.	Water, sand, earth, brooms, blankets, etc. may be used to suffocate the fire.	Water is likely to be essential for drinking purposes, and will probably not be available for fire fighting. Non-potable water can be used for fires. Sand will be difficult to use on irregular surfaces.  Brooms, thick coats, blankets, rugs, particularly if dampened, can be used to smother small fires.
Oil, gas, or grease.	Dry chemicals, CO <sub>2</sub> , sand or water in a fog or fine spray.	It may be difficult to breathe if dry chemicals or CO <sub>2</sub> are used in a small room. A heavy stream of water may spread the fire.
Electrical	Dry chemicals or CO <sub>2</sub> . Sand — if not in danger of damaging machinery. As a last resort — water, after having made sure to turn off electrical current.	Until the power is turned off, there is the danger of electrocution if water is used. Also, water may damage the machinery.

## **PROVIDING FOR BASIC NEEDS**

# **4**

**Atmosphere and Temperature Control**

**Water**

**Food**

**Sleep**

**Sanitation**

**Medical Care**

# **CHAPTER 8. ATMOSPHERE AND TEMPERATURE CONTROL**

## **THE IMPORTANCE OF ATMOSPHERE AND TEMPERATURE CONTROL**

Of all the basic human needs described in this document, the one with the most immediate and widespread impact upon survival is atmosphere and temperature control. The phrase "atmosphere and temperature control" covers several problem areas, each vital for sustaining life.

Generally speaking, these problems are dealt with through methods of air exchange; that is, the introduction of ample quantities of fresh air into the shelter and the simultaneous removal of stale air.

Most community shelters currently lack the equipment to achieve air exchange mechanically. The majority of shelters will have to depend upon the natural circulation of air through the shelter to solve their atmosphere and temperature control problem.

## **MANAGEMENT GOALS**

The major management goals fall into three categories. One is concerned with maintaining the temperature of the shelter within survival bounds. The second deals with the control of the critical atmospheric components, namely, carbon dioxide and oxygen. The third goal is the control of noxious substances, which can be fatal (as in the case of carbon monoxide), or which can negatively affect shelter efficiency and morale (as in the case of odors).

## **THE CONCEPT OF AIR EXCHANGE**

Air exchange is the introduction of fresh air into the shelter and the simultaneous removal of stale air from the shelter through natural or mechanical means.



Natural ventilation is the circulation of air through wall cracks, open doors and windows, around closed doors and other openings present in shelters which are above ground, or in unsealed basements.

Forced or mechanical ventilation is the more effective method for providing air exchange. This method employs mechanical equipment such as fans and blowers to exchange air.

#### **Determining Shelter Air Exchange Requirements**

It is difficult to determine the amount of air exchange which will be necessary in a given shelter. The volume of exchange required will depend upon size of the shelter, number of shelterees, and outside environmental conditions, such as the temperature and humidity. In a shelter using mechanical ventilation, three cubic feet of fresh air per person per minute has been widely suggested as a minimum rate of air exchange for maintaining a safe atmospheric composition. However, this rate of exchange will be inadequate for limiting the increase in temperature and humidity during warm weather unless supplementary cooling is provided.

#### **The Concept of Effective Temperature**

"Effective temperature" is a useful concept for classifying the effects of temperature on the comfort of the shelter population. "Effective temperature" is a composite measure of temperature, humidity, and air movement. As an example, if the temperature is 75 degrees Fahrenheit, the humidity is average, and there is sufficient air movement, the result would be a quite comfortable environment; however, with no perceptible air movement and high humidity, the same temperature would create an uncomfortable situation. The concept of "effective temperature," then, indicates that the three variables of temperature, humidity, and air movement should all be taken into consideration when evaluating the suitability of a given shelter environment.

## **CONTROLLING TEMPERATURE IN NATURALLY VENTILATED SHELTERS**

### **Causes of Temperature Extremes**

The causes of temperature extremes in shelters generally fall into one of two categories: (1) those due to external conditions (e.g., the temperature of the air being drawn into the shelter), and (2) those due to events within the shelter. By far the most important factor in the latter category is the body heat generated by shelter occupants. In a crowded fallout shelter, most of the body heat will be dissipated by releasing heat and moisture to the shelter air. Heat may also be generated by hot plates or heating units used to prepare food or by shelter machinery.

### **Effects of Temperature Extremes**

The range of temperature from 68-72°F. effective temperature normally provides optimum comfort. Many shelters will experience temperature conditions that are more severe than the optimum range. However, effective temperature between the range of 78-85°F. can be tolerated by most people for long periods of time. With effective temperatures higher than 85°F., heat-stress reactions become progressively more intense, with debilitation and even death as possible outcomes. At high effective temperatures, work efficiency will decrease. Those performing physical activities may suffer increased accidents from inattention and poor judgment, and the quality of sustained intellectual tasks will decrease due to the inattention produced. Irritability and expression of aggression may be common.

Generally, the lower range of tolerability extends downward to 50 degrees with adequate food and clothing.

### **Detection of Temperature Extremes**

To determine high effective temperature when instruments are not available, the body temperature of approximately ten per cent of the population can be checked at half-hour intervals when high effective temperature is suspected. In a very large shelter a check of two per cent of the population may be adequate in any one shelter area. If the average rise in body temperature of the sample approaches two degrees Fahrenheit above normal, remedial

action should be taken. For accuracy, temperatures should never be taken after physical exertion.

#### **Limited Control of High Effective Temperature**

The control of high effective temperature in naturally ventilated shelters is limited to two procedures--the reduction of heat-producing activities and the utilization of initial coolness within the shelter.

1. Avoiding heat-producing activities. The most important heat-producing elements in the shelters are the shelterers themselves. Management should encourage the cessation of all but vital activities, encouraging rest periods and other sedentary activities. Other areas for management concern are the control of heat-producing appliances and the prevention of evaporation (a heat-producing process) from such sources as open water cans, garbage, etc.

2. Utilize initial coolness. Initially, the earth surrounding an underground shelter may give some cooling effect for the first day or two, after which the temperature in the shelter will increase rapidly. If entry occurs during hot weather and the shelter feels comparatively cool, the shelter should not be heated.

#### **Control of Low Effective Temperature**

1. Physical activity. Unrestricted activity, exercise, and close body contact will help to raise both the body and the shelter temperatures.

2. Hot beverages and food. Heated food and beverages will make people feel warm, and will thereby aid morale considerably.

3. Improvised covers. Covers may be improvised from newspapers (which can be wrapped around the body), cardboard, or any other available materials.

### **MAINTAINING ATMOSPHERIC BALANCE IN NATURALLY VENTILATED SHELTERS**

A life-sustaining atmosphere must retain a relative balance of atmosphere components. An excessive

increase in carbon dioxide and an excessive reduction of oxygen must be prevented, and all toxic or noxious components, such as carbon monoxide, must be kept to a minimum.

#### **Oxygen/Carbon Dioxide Balance**

When discussing oxygen/carbon dioxide requirements, two factors must be taken into consideration: (1) the absolute amount of each in the atmosphere, and (2) the relative amount of one to the other. Air normally contains approximately 21 per cent oxygen by volume and 0.02 to 0.04 per cent carbon dioxide. When oxygen drops below 14 per cent by volume, and/or carbon dioxide rises to two to four per cent, adverse physiological symptoms will begin to occur. However, even in cases where the percentage of oxygen remains high, an excess of carbon dioxide will have adverse effects. While extremes greater than this may be tolerable for a very brief time, all studies indicate that a low-oxygen to high-carbon-dioxide ratio over more than a few hours can be fatal or highly damaging.

#### **Causes of Oxygen/Carbon Dioxide Problems**

The major problem is carbon dioxide. Unless there is adequate fresh-air supply, carbon dioxide will tend to build up rapidly, and symptoms of excess carbon dioxide may be in evidence even before the oxygen levels have dropped significantly. Carbon dioxide is a product of combustion (burning) and results from: (1) human metabolism of food, (2) open flames, (3) smoke or exhaust from auxiliary power sources within the shelter, or (4) even cigarette smoking. Since most shelters will not have auxiliary power sources, the major cause of carbon dioxide will be the result of human activity.

#### **Symptoms and Effects of Oxygen/Carbon Dioxide Imbalance**

As the level of carbon dioxide content rises, breathing becomes deeper and quicker. As the level reaches the maximum allowable content, nausea may occur, followed by inability to coordinate and unconsciousness. Carbon dioxide in excess of ten per cent will produce unconsciousness. The symptoms of oxygen deficiency are similar to alcoholic intoxication, and include impairment of vision and reaction

time, anger, and extremes of exhilaration, boisterousness, and even hallucinations. Fingernails and lips will turn blue. Below five per cent concentration of oxygen, death will occur within a few minutes.

#### **Detection of Atmosphere Imbalances**

Shelterees may be affected by atmosphere imbalances without becoming aware of the cause. It may be difficult to distinguish the effects of atmospheric imbalances from other conditions with similar symptoms. However, atmosphere imbalances should affect a number of shelterees almost simultaneously as contrasted to individual anxiety reactions. If one shelteree faints, it may be a result of emotional stress; however, if several persons faint, the manager should suspect atmospheric imbalance as the possible cause. If people located near fresh-air intakes seem to be in much better condition than those who are distant from the intakes, an atmospheric problem should be suspected.

#### **Other Noxious Atmospheric Components**

1. Carbon monoxide. Carbon monoxide is colorless, odorless, and tasteless, and therefore extremely difficult to detect. Carbon monoxide may have serious cumulative effects in very minute quantities. It may be a problem whenever ventilation or exhaust is inadequate.

Carbon monoxide is given off by engine exhaust fumes, tobacco smoke, or open flames. For this reason, any engines in-shelter should be located in a separate room with special exhaust ports. Smoking may have to be curtailed if a forced-ventilation system is not available, and open flames should be allowed only if proper exhaust is available.

Symptoms of carbon monoxide toxicity are flushed skin, dizziness, lack of strength, poor balance, fainting, and mental confusion. Unconsciousness and death can result quickly.

2. Other gases. Certain common substances may be dangerous in a closed, poorly vented shelter. A partial list of things to be avoided includes cleaning agents, solvents, degreasers, carbon dioxide

refrigerants, ammonia, pressurized dispensers or aerosols, broken mercury thermometers, and some types of fire extinguishers.

3. Odors. While people will be able to adapt to most offensive odors after a few hours, odors resulting from sanitation problems, illness, or death can be objectionable--even fear producing--and may contribute to a loss of appetite, nausea, and irritability. Although these odors might not force anyone out of the shelter, they may make adjustment to shelter living more difficult.

#### **Control of Atmosphere Components**

There are three basic approaches that can be taken by management to "normalize" the shelter atmosphere.

1. Control those devices and/or activities that produce atmosphere imbalance or noxious odors. This would include proper venting of power equipment, control of smoking, control of shelter activity (for oxygen and carbon dioxide balance), and isolation of garbage and body wastes.
2. Open shelter windows and entrances to provide for additional air circulation.
3. Move shelterees to other areas within the shelter or, as a last resort, to other shelters.

### **AUGMENTED ATMOSPHERE AND TEMPERATURE CONTROL FACILITY**

#### **Elements and Problems of Mechanical Ventilation System**

1. Equipment. The problems which arise in the use of mechanical ventilation will generally be associated with operation, maintenance, and limitations of the equipment. Depending upon the capacity and efficiency of the equipment, it may also be necessary to augment a mechanical system with procedures recommended for natural ventilation, in order to increase the comfort of the shelter.

2. Power supply. All forced-ventilation systems will require some type of power, either electrical (from a public utility or auxiliary power sources) or manual (such as the pedal-operated ventilation kit now under study by OCD).

3. Technical personnel. Although a mechanical ventilation system can generally be operated by untrained persons, a competent technical supervisor and crew should handle repair and maintenance aspects of the ventilation system.

4. Technical information. Technical manuals on operation, maintenance, and repair for each piece of shelter equipment should be attached to that equipment or located in a convenient place.

5. Temperature variation. The air at the intake opening of a mechanical ventilation system may be relatively cool and drafty compared to the hot, humid air at the exhaust outlet. Consequently, shelterees may tend to crowd toward the intake opening to compensate for the temperature variations. Because this condition may create friction over shelter location assignment, the shelter manager may wish to arrange some form of rotation.

#### **Special Equipment**

Because carbon dioxide will probably be a major problem in atmospheric content, a carbon dioxide detector of some variety is recommended for the shelter. An oxygen meter to determine when oxygen goes below adequate level may also prove useful.

Atmospheric components can be controlled by the use of special devices such as: (a) chlorate candles for the emission of oxygen, (b) carbon dioxide absorbants such as soda lime, or (c) an oxygen supply for direct introduction of pure oxygen into the atmosphere. However, these methods may create problems of their own. Trained personnel and adequate protection against fire would be needed for the use of oxygen tanks, and the chlorate candles and carbon dioxide absorbants are heat producing.

### **Filtration**

Filters are not a part of the Federal marking and stocking program. However, some shelters with augmented capabilities have filters.

There are important implications for shelter management stemming from the use of filters. These include:

1. Insufficient air. When a filter is used in a forced-ventilation system, energy is required to overcome the resistance which incoming air meets when being pulled through the filter. As it becomes clogged by dust or particles, resistance to air flow increases and the rate of air flow may be substantially reduced. Although filters vary in dust-holding capacity, if the filters are clean at the beginning of occupancy, the increased resistance due to two weeks of operation should not be excessive.

2. Susceptibility to damage. Almost all filters are susceptible to blast damage. Humidity is a problem particularly for chemical or charcoal filters, which can be destroyed by high humidity. Without air-conditioning capabilities, these filters may have limited life.



# **CHAPTER 9. WATER**

## **THE IMPORTANCE OF WATER**

Of all the provisions stocked in a public shelter, water is the most directly and immediately related to survival of an extended shelter stay. The amount of water contained in the OCD water drums will provide less water per person than we normally consume. However, it has been demonstrated that people can survive on one quart of water per day under the following conditions.

1. When temperature and humidity fall close to the optimum (68-72°F. effective temperature).
2. When vigorous physical activity is restricted.
3. When salty or other thirst-provoking foods are eliminated from the diet.
4. When illness and injuries that increase an individual's need for water (diarrhea, burns) are absent from the shelter. It should be recognized that increased temperature sharply increases water requirements.

Water deprivation will have both physical and emotional consequences. After a certain period of time the physical damage to the body becomes irreversible; increased water intake does not lead to recovery after this point. A four or five day period of total water deprivation will result in the death of a large part of the shelter population. Water deprivation results in impaired mental functioning, ultimately leading to states of hallucination and confusion.

The importance of water to survival is a fact that may enter into a number of crucial shelter management problems. For example: (1) trips outside the shelter to replenish water stocks may be required before external radiation levels are completely safe, and (2) shelteree reaction to lack of water or what are perceived as unfair practices in the distribution and use of water, may threaten the maintenance of order.

## MANAGEMENT GOALS

The major responsibilities of shelter management in regard to water are: (1) to control the use of, and distribution of, OCD water stocks, (2) to obtain and render potable, alternate sources of water, and (3) to control those aspects of shelter life that bear on water consumption, such as the shelter diet, the activity level, and use of heat-producing equipment.

## SHELTER WATER RESOURCES

### OCD Stocks

Current OCD supplies provide 17.5 gallon steel drums including polyethylene liners for water storage. When filled, each drum will supply water for five shelter spaces at the rate of one quart per person per day for two weeks. Under normal conditions a five year "shelf life" for water stored in OCD containers can be assumed. These water containers and liners serve a dual purpose; when emptied they are to be used as toilets.

### Additional Sources of Water

A major management obligation is to explore the possibilities of obtaining water from sources other than the OCD supplies.

1. Public water system. A number of shelters located in areas remote from any nuclear blast may find the public water system in operation after an attack. However, rather than depending on the uninterrupted operation of the public system, it may be desirable to fill bathtubs, sinks, buckets, etc. to provide as much water as possible in the shelter in the event of subsequent unavailability of public water supplies.
2. Water external to the shelter. In this category are water-storage tanks, OCD-stocked containers in other areas or shelters, and wells that may have been especially dug with the shelter in mind.
3. Water internal to structure. A number of shelters will have a significant quantity of

water within their own structure. The major source will be the building water system, in pipes, water closets, etc. Liquid-packed foods and ice from refrigerators are also included in this category.

## **MAKING WATER USABLE**

In most cases, the primary water supply stocked in the OCD drums will be drinkable without any additional treatment required in-shelter. However, water from other sources may have to be decontaminated and/or purified.

### **Decontamination**

The decontamination of food and water is discussed on pages 77-78.

### **Purification**

Water purification means the removal of harmful contaminants other than radioactive particles from the water supply. The three types of impurities which will be encountered most frequently are bacteria, foreign bodies, and toxics (e.g., anti-rust chemicals).

The likelihood of encountering toxic elements in the shelter water supply will be small. Bacteria may be combated with water-purification tablets, which are provided in Federally stocked shelters. Several drops of chlorine household bleach or tincture of iodine added to each quart of water also can be quite effective, as will boiling the water for at least one minute.

Foreign bodies may be removed by filtering the water through filter paper, gauze, fiberglass, or finely woven fabric; or by allowing the water to stand until the sediment settles, and pouring off the "clean" water.

### **Aeration**

Water that has been stored in a closed system or a container for any length of time may be experienced by many people as having a bad taste. While the water

may be perfectly drinkable, shelteree acceptance may be affected because of the belief that the water is unsafe. Water that has been stored for an extended period can be made more palatable by aeration; that is, by carefully pouring the water from one container to another several times.

## **CONTROL AND USE OF WATER**

Because water is essential for life, it is of primary importance to prevent its waste and to ensure that it is rationed fairly. Even when shelter water supplies appear plentiful, the shelter manager should initially operate under the assumption that unforeseen factors such as overcrowding, loss of water, or an extended shelter stay may reduce the availability of water. In addition, it may be desirable to save water for the immediate post-shelter period, if possible. All this makes a plan for the control and use of water and its strict implementation necessary.

### **Topping OCD Water Drums**

In order to tap water containers with a minimum of loss, the bag must be siphoned with the provided tube. Directions for the use of the siphon are included among the Federal stocks. Starting siphon action by mouth suction is to be avoided.

In order to stop the flow of water, either a medical clamp found with the syringe in some OCD medical kits, or some type of improvised clasp or tie (for example, a paper clip) should be used. When the water in the drum is too low to flow freely, the drum should be elevated so that water can continue to flow. After the water supply has been depleted, any additional water which has spilled into the outer bag should be used before the empty drum is used for other purposes.

### **Topping Other Water Sources**

The procedures to obtain water from such sources as pipes, water tanks and closets, and storage tanks all basically involve similar steps. Someone with a knowledge of the building water system should be consulted to assist in the location of valves and other

system components. At the time of shelter entry, all water intake valves for the building and for individual tanks should be shut off. Then a valve or faucet at the highest, radiologically safe point should be opened, to provide the required pressure for tapping the source. To conserve water, all water taps except the one required for pressure should be closed.

#### **Equal versus Special Rations**

Generally, an equal portion for all, no matter how limited, will be the most acceptable form of rationing, particularly in larger shelters. If, however, the shelter population is highly motivated and cohesive, different rations may be established for different people, according to their needs. For example, persons engaged in physical activities, diabetics, persons suffering from burns, etc., may require more than the normal ration in order to function, or even survive.

#### **Scheduling Water Servings**

Water should be served at regular intervals during the day. A schedule of five or six water servings per day is recommended, to be distributed with each serving of food. Sample daily water distribution times are indicated in the shelter schedule, Appendix A. In small shelters, a water record may be kept for each shelteree by the water team, allowing for flexibility in water rationing.

#### **Drinking Containers**

Each shelteree should have his own container for the duration of the shelter stay. Some Federally provided stocks contain covered plastic cups in the sanitation kits, while others contain plastic-lined paper cups. Shelterees should be cautioned about care of the cups, as they must be made to last for an extended period of time. If there is sufficient space and equipment, a rack or similar device may be constructed for the storage of drinking cups. Regardless of how cups are stored, each person should put his initials or name on his cup for identification purposes.

#### **Other Uses of Water**

Although water may be desirable for other shelter functions, such as personal hygiene, sanitation, fire suppression, and decontamination, these are secondary uses and other alternatives to water will frequently be available. If, however, drinking water is more than adequate for all eventualities, management may allocate water for the above purposes.

Non-contaminated water which is considered non-drinkable because of impurities may be used in fire fighting, decontamination from fallout, sanitation, personal hygiene, and heating food containers.

# **CHAPTER 10. FOOD**

## **THE IMPORTANCE OF FOOD**

Healthy individuals should be physically able to survive a shelter stay without any food. In spite of this, the availability of a food supply should be a major consideration in the management of any shelter.

If shelterees are expected to participate in post-shelter recovery operations, they will require food during the confinement period. Even more to the point, the absence of food or its mishandling can create serious management problems in a community shelter. Food has tremendous emotional significance in our culture, and the failure of management to provide what is perceived as a basic need, can easily jeopardize leadership effectiveness.

Finally, many shelters can expect occupants who because of age or infirmity are less able to withstand the rigors of confinement without food, or are unable to accept the survival rations. In such groups, the shelter manager may be confronted with problems of actual physical survival.

## **MANAGEMENT GOALS**

The management objectives pertaining to food are:

- (1) control and distribution of food resources,
- (2) maintaining edibility of food stocks, and (3) solution of special feeding problems such as those posed by infants, the elderly, and the infirm.

## **SHELTER FOOD RESOURCES**

### **OCD Survival Rations**

The Federal Government is supplying survival rations to all marked shelters. The current stocked survival ration provides 10,000 calories per shelter space. This amounts to approximately 700 calories per day for as long as two weeks, at the marked

capacity of the shelter. The currently stocked survival rations are described in Table VII.

#### **Other Sources of Food**

A number of buildings in which shelters are located contain vending machines, concessions, kitchens, and similar sources of food. These supplementary stocks can be brought into the shelter at the time of entry, or when temporary emergence from shelter becomes possible.

Some shelters with an augmented food capability will be able to approximate a standard diet for their occupants during all or part of the shelter stay.

### **CONTROL AND USE OF OCD SURVIVAL RATIONS**

#### **Rationing**

Under shelter conditions, food supplies will have to be strictly apportioned for the duration of the shelter stay. Shelter management should explain the reasons for rationing and maintain close control over food distribution procedures to insure that rationing is carried out according to plan.

Before the ration can be determined a census of the shelter population and an inventory of the food supplies must be taken, and an estimate of the duration of the shelter stay made.

Even if an apparent surplus of food exists, some food reserves should be allowed for unexpected problems or for the initial post-shelter phase. Among the anticipated conditions that may force revision of the rationing procedures are: (1) over crowding, (2) food spoilage or loss, or (3) a period of confinement beyond the estimated length of stay.

In general, an equal ration for all shelterees will be the most acceptable form of rationing. If, however, the shelter population is highly motivated and cohesive, different rations may be established for different people, according to their needs. For example, persons engaged in physical activities, ill people, pregnant and lactating women, and adolescent males may



**Table VII**  
**Food Rations Stocked by OCD**

<b>TYPE</b>	<b>PACKAGING</b>	<b>DESCRIPTION</b>	<b>HOW TO EAT</b>
Biscuit, wheat flour, baked.	The unit of issue is 5 pounds (10,000 calories) per person. The food items will usually be packaged in cases of six 2.5-gallon cans and cases of two 5-gallon cans. The case containing the six 2.5-gallon cans will provide 10,000 calories per person for 7 persons. The case containing the two 5-gallon cans will provide 10,000 calories per person for 5 persons. Can opener supplied in sanitation kit.	Similar in taste and appearance to graham crackers; 2" x 2" equals approximately 22 calories; 2.5" x 2.5" equals approximately 30 calories.	1. Dry, as a cracker. 2. Spread with jam, peanut butter, cheese. 3. As supplementary ration: a. Crumbled with milk and sugar. b. Served as soft gruel for aged and children.
Cracker, wheat-corn flour, baked.	Same as biscuit.	Same as biscuit.	Same as biscuit.
Wafer, wheat based (Hulgur).		Approximately 2" x 2" x 1/4" or 1 1/4" x 1 1/4" x 1/8". Each wafer weighs about .7 of an ounce and contains approximately 75 calories.	1. Dry, as a cracker. 2. Spread, as biscuit. 3. As supplementary ration: a. Crumbled with hot sauce like chili or spaghetti. b. Added to soup, like rice or barley.
Carbohydrate (hard candy) supplement.	Loose in 5-gallon square tin with polyethylene-treated paper bags; two tins per case.	Flavors similar to lemon and cherry drops, forming one-third (by weight) of the food ration in lieu of an equivalent quantity of biscuit, or approximately 20 calories per piece.	Eaten as hard candy. A daily ration may be distributed to volunteers if there are enough bags; or a portion distributed at each meal time.

be given slightly larger rations. If such a procedure is adopted, the reasons behind it should be made clear to the shelter population.

Because some shelterees may never eat as much as allotted, and others may not eat their total ration at every meal, some flexibility may be introduced into the rationing system if shelter size and manageability make it possible. In small shelters, a food account or record may be kept for shelterees allowing them to take different amounts of food at different times, drawing against their daily food ration. This has a sanitation advantage over permitting the individual shelteree to keep his uneaten crackers in his pockets, and also provides greater management control over food supplies.

#### **Scheduling Meals**

Even if the food supplies are very limited, it is desirable to serve meals on a regular schedule.

It is recommended that shelter management try to distribute five or six servings throughout the day in conjunction with the serving of water. This may take the form of (1) three larger servings at hours corresponding to normal mealtimes and two or three smaller amounts between meals, or (2) five to six equal servings throughout the day.

The reasons for distributing five or six smaller portions of food through the day are: (1) to make the survival rations more palatable by serving smaller quantities at any one time, (2) to reduce the feelings of hunger due to the limited amounts of food, and (3) to break the monotony of the routine by scheduling food and water "breaks" during the day.

The first meal can be served as soon as the shelter has been organized into living units and feeding procedures have been determined. Also to be considered before serving the first meal is shelteree reaction to food which will be affected by their reaction to disaster and the time since their last pre-shelter meal.

### **Preparation for Survival Rations**

The OCD survival ration does not require any special preparation. However, careful attention should be paid to any variation in packaging, size, or perforation pattern of the crackers or wafers to assure that an equitable ration is given to each shelteree. It is also important that the procedures used for distribution of the rations meet the highest possible sanitary standards.

### **Distribution of the Survival Rations**

The three methods for distributing the survival ration are the fixed-point, moving-point, and combined methods. The approaches are described on pages 49-50.

Unless special conditions are present in a particular shelter (1) the same distribution method should be selected for both food and water distribution, and (2) only one serving of rations should be distributed to shelterees at a time.

### **Consumption of Survival Rations**

Management can anticipate some problems concerning the acceptance of survival rations. Some shelterees may be reluctant to try survival rations or may find them unpalatable. With increased hunger, however, this initial reluctance will tend to disappear. Other shelterees may find the rations initially palatable, but due to the unrelieved monotony of the diet, they may find it more difficult to accept the rations after a period of time. Any food variety that can be introduced into the diet will increase acceptability and may prove to be a significant morale factor.

## **FEEDING INFANTS AND AGED SHELTEREES**

The ideal food for infants is breast milk, and lactating women should be encouraged to feed infants other than their own if they have an adequate supply of milk. If breast feeding cannot be accomplished or if such feedings must be supplemented, a formula should be used. One standard formula consists of evaporated milk (one can) and water (19 ounces).

For infants or the elderly unable to chew or swallow the bulk, a gruel can be made of the wafer by the addition of water, or crackers can be softened by dipping them in water.

## **SHELTERS WITH AUGMENTED FOOD CAPABILITIES**

Few shelters will have food supplies approximating a standard diet. Those which do will require detailed plans for the food preparation, food service, and food distribution phases of their feeding activity. It can be assumed that the personnel responsible for food preparation have been designated in advance, and familiarized with their duties.

The following are some factors to consider in establishing an augmented feeding program in-shelter.

1. Relationship of food to water. When augmented food supplies are to be used, an additional water supply is almost always necessary. An augmented diet is likely to include some high protein foods which will raise the water requirements. Also, water will be needed for clean up of eating utensils and cooking facilities, and often for the preparation of food.

2. Stringent sanitation requirements. An augmented food capability imposes a requirement for stringent sanitation procedures. As discussed on page 132, high sanitary standards constitute a basic shelter defense against the spread of disease. Procedures for clean up and garbage disposal must be more elaborate in a shelter serving standard food items. Precautions must also be taken to avoid spoilage of food, with its threat to health.

3. Heating or cooking foods. Several factors must be considered before food and water should be heated: (a) the effect upon temperature and humidity, (b) the power drain, and (c) the potential hazards in preparing and distributing hot foods under shelter conditions.

4. Eating utensils. Normally, it can be expected that shelters with augmented food capabilities will have sufficient eating utensils, and the supplies to

keep them clean. If not, plates can be improvised from other shelter materials. If, for some reason, there is no way to clean plates and utensils, shelterees should be allowed to keep their own and be responsible for cleaning them as best they can.

5. Shift feeding. In large shelters with an augmented food capability, it may be necessary to feed the population in shifts.

# **CHAPTER 11. SLEEP**

## **THE IMPORTANCE OF SLEEP**

Sleeping is a vital human activity that requires careful consideration in shelter organization and operations. Although sleep deprivation is less of a threat to physical survival than, for example, water deprivation, long-term and widespread disturbances in sleeping can contribute to serious shelter problems. Shelteree reaction to extended periods of sleeplessness may be either apathy and listlessness, or, on the other hand, irritability; or may be a combination of the two. This may be accompanied by physical symptoms, such as headache and nausea. Performance of tasks requiring concentration may also be impaired.

In-shelter sleeping arrangements can affect all other activities. Sleep requires more time and space than other activities, and therefore influences the physical organization of shelter space and the scheduling of other tasks.

The material in this chapter pertains largely to the shelter that does not have a pre-planned system of bunks or cots for sleeping the total shelter population.

## **MANAGEMENT GOALS**

Management goals in this area are threefold.

The first goal is to establish sleeping arrangements. This encompasses such factors as the sleep schedule, the location of the sleeping area, and the grouping and positioning of sleepers.

The second goal deals with the provision of sleeping facilities; i.e., the bedding and other sleep equipment that management may provide or improvise.

The third objective is the solution of sleep problems and the control of potential nighttime disturbances.

## ESTABLISHING SLEEPING ARRANGEMENTS AND FACILITIES

### Procedures and Guidelines

1. Simultaneous versus shift sleeping. If adequate space is available, it is better to plan to sleep the entire shelter population at one time, rather than in shifts. Simultaneous sleeping offers fewer problems in such areas as noise control, shelteree movement within the shelter, and scheduling of activities. Also, from the health point of view, it is desirable that only one person use a particular cot, mattress, blanket, etc.

The major advantage of shift sleeping is that it saves space. However, the utilization of space might be limited by the requirements to lower noise and illumination levels, so as not to disturb those on the sleep shift. If shift sleeping is required, it is recommended that the number of shifts be kept to two, if at all possible. This will permit a large period of time daily when all shelterees are awake for activities in which the entire shelter population should participate. Two-shift sleeping will also allow time for daytime naps and rest periods for children and others requiring them.

2. Location of the sleeping area. The principal considerations involved in locating the sleeping area include shelter size and layout, ventilation, noise and light, and location of toilet facilities.

When shift sleeping is to be used, the sleeping area must be separated from the activity area, either by a barrier or by physical distance. This has a twofold purpose: to insure that sleepers are not affected by ongoing activities in the shelter, and that activities are not constrained by the requirement to keep light and noise at a level so that people can sleep.

3. Grouping of sleepers. It is recommended that shelterees be separated in the sleeping area on the basis of sex, age, and marital status. Unmarried men and women, and also those who are married but are unaccompanied by their spouses or children,

should be grouped by sex and assigned to separate sleep areas. It is also advised that infants and pre-teenage children sleep in close proximity to their parents.

The most effective plan for grouping is to use physically separate areas for a dormitory for single men and one for single women. Family groups should sleep together in a third location.

If the shelter consists of a single space, single men and women can be assigned sleep positions at opposite ends of the shelter, with family groups in between.

4. Positioning of sleepers. If shelterees are arranged in certain standardized sleep positions, the spread of respiratory ailments may be decreased. The most frequently recommended position is for shelterees and their neighbors to sleep in a head-to-toe arrangement. See Figure 7.

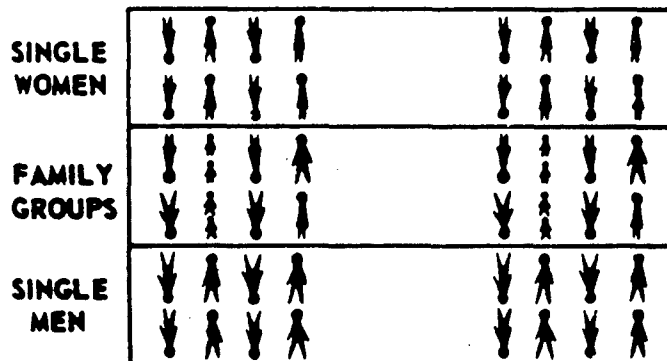


Figure 7. Sample Sleeping Arrangements

#### Equipment and Supplies

The manager of a shelter without bunks or cots must make a decision as to whether shelterees should sleep on the floor or whether sleeping facilities can be improvised from available materials in the shelter.



1. On-the-floor sleeping. The simplest solution is for everyone to sleep on the floor. Although uncomfortable, this can be accomplished without serious health consequences unless the floor is wet and cold. If anything can be placed between the sleeper and the floor, acceptance of on-the-floor sleeping will increase. Items that might serve this purpose are rugs, carpets, drapes, cardboard, even several layers of paper, gym mats (in a school shelter), coats, and the like.

2. Other improvised facilities. Certain shelters may have "built-in" features that can be used for sleeping purposes. In a shelter containing an auditorium, the seats will make quite comfortable sleeping facilities. In a filled parking garage, cars may well provide space for sleeping.

Very adequate non-tiered bunks for infants and small children also may be made from cardboard cartons.

In a number of shelters, it will be possible to improvise a bunking system by modifying existing facilities. This will usually require a fair amount of time, manpower, and, often, some tools. This approach should be attempted only when the anticipated benefits are great; that is, when tiered bunks will greatly increase the amount of shelter space available for other purposes.

The development of such sleeping facilities is largely a matter of ingenuity. One method which has been demonstrated as feasible is to fasten together six or seven multi-tiered, open-backed metal bookcases or stock shelves.

As mentioned above, an improvised mattress will tend to increase shelteree comfort. Blankets will not be necessary in the warm environment of many shelters. In those shelters in which blankets are needed, they may be improvised from among such sources as clothing, towels, newspapers, etc. If needed, pillows can be improvised out of similar materials.

It is desirable to erect partitions in the sleeping area. Partitions serve to separate the sleeping area from the daytime area, which is a requirement for shift sleeping. Secondly, partitions can be used to segregate the sexes during sleeping hours, which will help maintain social control in the shelter.

Before cartons of supplies are used for partitions, the consequences of the loss of space which the partitions take up should be weighed.

## **SLEEP PROBLEMS AND THEIR CONTROL**

### **Sleep Requirements**

It is difficult to establish a specified number of hours as a minimum sleep requirement. The amount of sleep required varies greatly with the individual and the situation. A majority of adults get between six and nine hours of sleep daily, but this cannot be taken as a standard for in-shelter sleep requirements. As a rule, children and elderly and infirm people will require more sleep than the general adult population. It is natural, and to be expected, that most shelterees will experience partial or total sleeplessness the first few days in the shelter. After the first few days, many people will tend to sleep or rest more than they did prior to entering the shelter. This may be due to a decreased intake of oxygen, water, or food, and the monotony of the environment.

### **Sources of Sleep Problems**

Generally, sleep problems fall under two headings: (1) problems caused by environmental conditions or austere sleeping facilities, and (2) problems caused by shelteree behavior. Problems created by such factors as temperature or humidity extremes are examples of the first category. Crying children may create a problem of the second category.

### **Maintaining Order During Sleep Hours**

The hours of sleep offer a stern test for shelter management. If order can be maintained at that time, then, from a management point of view, the shelter is in fairly good condition. Maintaining order during sleep hours is concerned with the following factors.

1. Control of noise levels. Noise within the sleeping area must be kept down to a level that will not interfere with shelteree sleep.

2. Control of light level. "Lights out" for sleep should prevail for the entire sleeping group. Individual shelterees should be discouraged from such activities as reading via flashlights after this time.

3. Maintaining social standards. High social standards should be maintained in the sleeping area. This pertains especially to sexual behavior. The shelter staff should try to identify potential problems and keep them from becoming actual problems.

4. Providing assistance to shelterees. During sleeping hours, shelterees may require assistance. These include people who cannot sleep, people who require medical attention, people using the toilet facilities, etc. One of the purposes of the sleep watch will be to render assistance to shelterees during sleeping hours.

5. Some form of relaxing activity, such as reading stories preparatory to turning lights out, can be an important factor in achieving control during sleep hours.

# **CHAPTER 12. SANITATION**

## **THE IMPORTANCE OF SANITATION**

Every community requires sanitation procedures in order to preserve the health and well being of its members. The problem of sanitation is an especially serious one within the shelter community because of the extended period of confinement under crowded conditions and because of the limited sanitation facilities that will be found in most shelters.

Maintaining the highest possible sanitation standards is a major shelter weapon for preventing or controlling the outbreak of disease. In addition to its impact on health, sanitation is also directly involved with shelter morale. The austere and different shelter procedures pertaining to personal habits can create negative emotional reactions if shelter management is lax in maintaining high sanitation standards.

## **MANAGEMENT GOALS**

The major responsibilities of shelter management in regard to sanitation are: (1) to supervise the establishment of toilet facilities adequate to the needs of the population, (2) to supervise the maintenance of shelter cleanliness, and (3) to determine what personal hygiene procedures may be permissible under shelter conditions.

## **TOILET FACILITIES**

### **Equipment and Supplies**

OCD-stocked shelters are supplied with kits containing sanitation supplies to meet the needs of the rated capacity of the shelter.

Initially, the drum containing the sanitation supplies is to be set up as the toilet, according to the instructions found with the supplies. However, as soon as empty steel water drums become available, they

should be used as toilets, in preference to the fiber-board drums.

In a number of shelters, normal flush toilets may be operable and accessible. They should be used only if the available water supply is inadequate to meet shelter drinking needs.

Among the contents of the sanitation kit for toilet use are toilet paper, a commode seat, and a chemical disinfectant. Waterless hand cleaner (found in some kits) is primarily for the use of the food, medical, and sanitation teams.

#### **Procedures and Guidelines**

The location of the toilet facilities is a matter that will require management attention. The sanitation area should be set up away from the living areas and the food and water handling areas, and, if possible, near a ventilation exhaust, to control odors and fumes. In locating the toilet area, it should be kept in mind that the sanitation kits will be inconvenient to move when filled.

How many commodes to set up at one time is dependent upon a number of factors. These include: (1) whether or not separate male and female facilities have been established, (2) whether or not populations with special sanitation needs are present (e.g., young children), and (3) whether or not medical conditions resulting in increased toilet use have occurred.

In the absence of abnormal conditions, one sanitation kit for every 50 shelterees may be considered a rough guideline. More than likely, in very large shelters, this ratio will have to be more austere.

Another management consideration is to keep the toilet areas shielded from general view, either by locating toilets in a separate room or by erecting improvised partitions. Acceptance of the toilet facilities will tend to be enhanced if separate toilet areas are set up for men and women.

In order to increase cleanliness in the toilet area, both males and females should be asked to perform

all toilet functions in the seated position. When using toilet facilities, children should be accompanied by adults to increase cleanliness. This includes young children who are normally thought of as being toilet trained.

Because toilet traffic may be heavier at certain times of the day, such as at reveille, the manager may have to establish special procedures for controlling the rate and timing of toilet use during periods of heavy use.

#### **Special Problems**

Infants and young children in diapers may constitute a serious problem for toilet sanitation. The basic alternatives are to improvise diapers, or to disregard diapers and clean up after each child.

Should an outbreak of illness causing diarrhea or vomiting occur, the sanitation facilities may be heavily taxed. Under such conditions, either more water drums should be made available for toilet use, or accessible flush toilets should be sought in the shelter structure.

### **SHELTER CLEANLINESS**

#### **Equipment and Supplies**

The supplies currently provided by OCD do not include cleaning materials. If sanitation facilities are adequate, some of the chemical disinfectant may be used in cleaning and in treating non-toilet waste materials.

Cleaning equipment in the form of dust pans, litter cans, and boxes can be improvised from the cardboard and metal containers in which the OCD supplies are stocked.

Many shelters will have access to regular cleaning supplies stored somewhere in the shelter structure, which will greatly simplify the problem of maintaining shelter cleanliness.

### **Procedures and Guidelines**

Because of the fire, health, and morale consequences, trash and garbage should be removed from the shelter, or at least from the living area, as soon as feasible.

The manager should see to it that regular and frequent clean-up periods are held in-shelter, including one after every meal.

The shelter population should be informed that many items that would normally be disposed of as trash can be put to good use in-shelter. This refers to waxed paper, empty boxes and tins, newspaper, etc.

If the manager has determined that an ample water supply exists in the shelter, some water may be used in cleaning the shelter, but extensive use of water for cleaning is recommended only where the water supply is practically unlimited and where high humidity is not a problem.

## **PERSONAL HYGIENE**

### **Equipment and Supplies**

Personal hygiene items provided in the OCD stocks consist of sanitary napkins, toilet paper, and waterless hand cleaner (present in some kits).

Articles such as soap, razors, toothbrushes, etc. will very likely not be available in a shelter, although some individuals may bring such articles with them. However, even if such articles were stocked, the restriction on water consumption would severely limit their use.

### **Procedures and Guidelines**

Because cleanliness is a positive morale factor for many people, it may be desirable to introduce some rudiments of personal hygiene by the ingenious use of available or improvisable facilities. So, for example, in shelters with an adequate water supply, sponge bathing should be permitted, especially for young children of diaper age and women. An occasional sponge bath may become a powerful morale booster.

If such improvisation is not possible, it should be remembered that most people will adjust rapidly to a soapless and toothbrushless environment, as illustrated by the likely reaction to body odors in-shelter. Evidence suggests that shelterees, after a short period of time, will adapt to body odors. Only after leaving the shelter, breathing relatively fresh air, and returning to the shelter will people notice the extent of the odors to which they had adjusted.

### **SHELTERS WITH AUGMENTED SANITATION CAPABILITIES**

Most of the procedures and guidelines pertaining to OCD sanitation stocks also apply to shelters with augmented sanitation capabilities.

The status of the water supply remains the major management consideration in evaluating the use of flush toilets, sinks, and showers.

In shelters with an increased food capability, the clean-up and garbage-disposal problems may be more extensive, but they follow the general sanitation procedures adopted for an OCD-stocked shelter.



## **CHAPTER 13. MEDICAL CARE**

### **IMPORTANCE OF MEDICAL CARE**

Medical problems that may occur in-shelter will have important implications for management, not only because ill or injured shelterees may be unable to contribute to the survival effort, but also because illness or injury may create morale problems both for the patients as well as others.

The medical problems of a shelter are threefold: the normal illnesses of incoming individuals, the possible epidemic spread of communicable or other diseases within a confined and overcrowded shelter, and the injuries and illnesses directly or indirectly caused by the effects of nuclear or other weapons.

The supplies, equipment, and medical-care pamphlet in the Federally provided medical kits are intended for the treatment of minor ailments and injuries. They do not provide a capability to deal with major medical problems. However, the management task in regard to medical care is the same in all shelters, regardless of their capability. It is to ensure that the medical personnel and medical material in a particular shelter are organized and directed against the pattern of illness and injury, to maximize the likelihood of attaining the basic shelter goal of group survival.

### **MANAGEMENT GOALS**

Management goals in the area of medical care fall into four categories.

1. The first concern is to establish a medical capability within the shelter. This capability includes medical personnel, the preparation of areas within the shelter for diagnosis and treatment centers, and provision and proper utilization and control of medical supplies and equipment.

2. The second area that management must concern itself with is the setting up of procedures by which sickness, injury, and other medical problems can be detected.

3. The third goal is provision of treatment for the range of illness and injuries that may occur within the shelter. This may extend anywhere from dispensing medicine at daily sick calls by untrained personnel to more extensive treatment given by a medical doctor in the treatment area.

4. The fourth goal is setting up a program of preventive medicine. This includes the formulation of a group of behavior guides and preventive measures that will ease the burden on the shelter medical facility.

### **ESTABLISHING A MEDICAL CAPABILITY**

In some public shelters, such as those located in hospitals, a medical capability will either be built into the shelter or convertible to shelter use according to a pre-arranged plan. In many public shelters, however, the medical capability will consist largely of the medical kits stocked by the Federal Government. The materials presented below are directed towards the latter type of shelter.

#### **Supplies and Equipment**

1. Stocked. Medical supplies should be constantly kept under watch and, if possible, stored under lock and key. The medical-treatment area is an ideal area for storage. In order to maximize control over these supplies, a daily inventory should be carried out and a medical log should be kept.

Relatively few shelters will stock emergency supplies of special drugs, such as insulin. If a person has entered a shelter without his vital medication or has depleted his supply and is in danger of death, volunteer donors of medicines should be sought from among other shelterees suffering from the same ailments.

2. Improvised and supplemental. The limited medical capability in a Federally stocked shelter can be somewhat enhanced by the use of improvised medical supplies. Some examples of medical improvisation are: (1) the use of sanitary napkins as medical dressings, and (2) the use of items of clothing as bandages.

In a number of buildings in which fallout shelters are located, there are first-aid or sick-room supplies that have been stocked for peacetime use, and that may be incorporated into shelter supplies.

3. Distribution of medical supplies. The distribution of supplies should be under the over-all jurisdiction of the medical team leader. At least one member of the medical team should be given the specific assignment of control and distribution of supplies.

In dispensing medication to shelterees, there are three cardinal principles to observe.

- a. Give only the immediate dosage, to prevent waste or loss of supplies and/or inappropriate usage.
- b. Take medicines "on the spot" in the presence of a member of the medical team.
- c. Keep a record of patient's medication. It is important from the treatment standpoint to be able to find out how much of what types of medications have been administered to a patient.

#### **Procedures and Guidelines**

1. Medical team personnel. Medical care is one of the few shelter activities for which extensive previous training is extremely desirable. The medical team should be selected very carefully, according to the guidelines on page 24.

2. Medical areas. All shelters should have at least one area set aside for the use of medical team personnel for the diagnosis and treatment of illness and injury. This is distinct from a sick bay, or

hospital-like section of the shelter, where severely ill and injured shelterees may be isolated from the remainder of the group.

The sick bay refers to an area in the shelter that should be set up if the shelter contains persons with communicable diseases or serious ailments or injuries that require isolation from the rest of the population. The reasons for isolating the seriously ill are: (1) to provide a setting within which the patient can be given the most effective treatment and care, (2) to reduce the possibility of the spread of contagious disease in-shelter, and (3) to control the potentially demoralizing effects that the appearance and behavior of severely ill or injured persons may have on other shelterees.

## **PROCEDURES FOR DETECTION OF MEDICAL PROBLEMS**

The following alternatives for managing medical diagnosis may be used singly or in combination, depending upon the size and configuration of the shelter, the extent of illness and injury in the population, and the availability of trained medical personnel.

### **Detection of Medical Problems at Point of Entry**

This method is quite limited in its applicability because it requires that a trained medical person be stationed at the entrance to the shelter to direct the obviously sick and injured to a separate part of the shelter for immediate treatment or further diagnosis. This approach requires: (1) trained medical personnel, (2) relatively slow rate of shelteree entry, and (3) relatively low proportion of patients among incoming population.

### **Detection of Medical Problems after Shelter is Filled**

After the shelter has been filled, either (1) people with serious medical problems should report to the treatment area, or (2) members of the medical team should circulate through the shelter "spot diagnosing" severe injury or illness.

### **Detection of Medical Problems from Registration Forms**

Included in the registration form will be space for the enumeration and description of medical problems. The completed forms should be reviewed by a trained medical person.

### **Detection from Medical Examination**

After the shelter has been organized and a schedule of activities put into effect, medical problems will, in the main, be detected by examination at daily sick call or on rounds made by the medical team.

## **TREATMENT OF MEDICAL PROBLEMS**

The following materials do not contain any detailed information about treatment of specific ailments or injuries, but focus upon the management responsibilities in regard to a program of shelter medical care. Guidance for in-shelter medical treatment is contained in a pamphlet stocked with the OCD medical supplies.

### **Emergency Treatment**

The major load on emergency treatment capabilities may be during the initial entry phase when entering shelterees may require this form of treatment. However, the need for emergency treatment may arise at any time during shelter occupancy; therefore, this capability should always be available.

Effective management of emergency treatment requires:

1. A capability for rapid and accurate diagnosis.
2. A capability for expansion of the medical areas, so that sudden increase in medical problems can be accommodated by expanding the size of the treatment area and/or sick bay.
3. Rapid movement of supplies and personnel. The capability to cope with medical emergencies is increased as the ability to move equipment and people with ease is increased.

### **Sick Call**

Sick call is the medical procedure whereby ambulatory patients are examined and receive treatment at a centralized location.

After the shelter schedule has been put into effect, sick call should be held on a daily basis, or more often for large shelters or those with extensive illness or injury. Preferably, sick call should be held in the diagnosis and treatment area.

If many people are expected at sick call, some procedure should be established for maintaining order among shelterees waiting for treatment. One procedure is to hold sick call on a community group basis. Each section or division can be assigned to sick call at a specified time, according to a schedule worked out by the medical team.

### **Medical Rounds**

Medical rounds is a procedure whereby members of the medical team circulate through the shelter and diagnose and treat cases of illness and injury at the point where shelterees are located. Medical rounds can be used as the basic treatment procedure or in conjunction with sick call. Like sick call, medical rounds should take place on a daily basis.

Not all shelterees will have a need for a circulating medical team. Medical rounds will probably be effective in very crowded shelters, in large shelters with extensive minor illness, or in shelters with a substantial number of trained medical people.

### **Self-Care**

Self-care is a procedure whereby shelterees minister to some of their own medical needs and, in a similar fashion, help other shelterees. In large shelters with extensive medical problems and limited resources, a considerable portion of the medical program will consist of self-care. The effectiveness of self-care can be increased by providing all shelterees with demonstrations of simple first aid and rudimentary practical-nursing procedures that are relevant to the shelter situation.

The basis of medical self-care consists of keeping the sick and injured clean and comfortable, and of maintaining their spirits. It may also include such simple medical tasks as changing dressings or monitoring the patient's condition; but, as a general rule, it precludes specific medical treatment. Self-care will likely be the basic approach to treatment for those with minor injuries and illnesses, for those with chronic conditions that cannot be relieved in-shelter, and for those shelterees who are beyond medical help.

#### **Establishing Priorities for Treatment**

All sick and injured shelterees should receive some form of medical care. However, in many cases, there may not be enough drugs or other scarce medical supplies to meet the needs of a shelter. In such cases, a management decision must be made as to which patients receive the scarce drugs or supplies and in what priority. The following guidelines are intended not as recommendations, but merely illustrations of possible approaches. This difficult decision must be made by the manager and the medical team head based on the particular medical situation in each shelter.

1. Priority on the basis of traditional selection criteria. A general procedure for allocating medical resources consists of utilizing the pre-disaster standards of American society. This means that medication should be given to persons who are in greatest need--that is, who are suffering the most. Secondly, it means that for patients with the same level of seriousness of injury or sickness, treatment should be initially given to those groups that are traditionally served first in our society--women, children, and the aged.

2. Priority on the basis of medical prognosis. Using this priority, medical treatment should be given first to those sick and injured whose chances for survival will be most greatly enhanced by the receipt of drugs or other treatment. In order for this approach to be effective, a trained medical person is required to assess medical problems and place patients in the proper treatment categories.

## **PREVENTIVE MEDICINE**

A crucial goal of the medical program is the prevention and control of epidemics and injury in the shelter through a comprehensive program of preventive medicine.

### **Procedures to Combat the Occurrence and Spread of Disease**

1. Maintaining high sanitary standards. Sanitation and preventive medicine go hand in hand. One of the major weapons against the occurrence of disease is high sanitary standards. Among the standards to be maintained to the highest extent possible are those dealing with: (1) the purity of food and water, (2) personal cleanliness, and (3) cleanliness of shelter areas. A program of sanitation also represents the best shelter defense against vermin, such as lice, fleas, mites, ticks, flies, mosquitoes, and rats, that are capable of creating medical problems via transmission of disease.

Insects and animals such as these should be disposed of where found. However, chemical insecticides, especially aerosol sprays, should be used with extreme caution, and only under conditions of adequate ventilation.

2. Maintaining rapid diagnostic capability. A rapid capability to diagnose illness is a distinct advantage in a campaign to limit the spread of disease. However, one must assume that such a capability will exist only in shelters with a highly trained medical person.

3. Isolating shelterees with contagious diseases. A major method to prevent the spread of disease is to separate the sick from the well.

4. Treatment of shelterees with contagious or communicable diseases. Not many shelters can be expected to stock vaccines or other special medicines that will prevent contagious diseases from developing or limit their effects. However, the drugs that will be commonly found in shelter medical kits, when used by trained medical personnel, can help in combating communicable and contagious diseases.



## **DISPOSAL OF THE DEAD**

Death poses significant problems for shelter management. There is the health problem concerning the possibility that the body will host disease-producing organisms. Secondly, there is a problem concerning the emotional impact of death on the shelter population.

### **Indications of Death**

The absence of heart beat, pulse, and breathing for about 20 minutes are some of the early signs of death. Several hours after death, body temperature will drop and rigor mortis will set in.

**CAUTION.** Great care must be exercised in the pronouncement of death by persons who have not been medically trained. Cases of severe shock and/or poisoning may leave a person paralyzed, and it may be difficult to detect breathing in the early stages of such conditions.

### **Procedures in the Event of Death**

The personal effects of the deceased should be collected and given to the family if they are present in the shelter. Otherwise, private property found on the body should be tagged and stored in the administration area or some other designated section of the shelter.

Records should be kept of all deaths in the shelter. Some form of identification should be attached to the body before it is put away.

Religious services for the dead should not be too elaborate. A simple service should be held by the shelter manager or a member of the religious activities team.

Body storage and disposal may involve two phases.

1. Body storage within the shelter. The body should be wrapped in a sheet, blanket, or other materials and removed from the main shelter area and placed out of sight of the other shelterees as soon as possible.

2. Movement of the body outside the shelter and subsequent burial. As soon as the external radiation levels are tolerable enough to permit short trips to the outside, the body should be moved and buried under at least three feet of dirt or earth.

# **SUPPORTING OPERATIONS**

# **5**

**Illumination and Power**

**Communication**

**Training**



# **CHAPTER 14. ILLUMINATION AND POWER**

## **IMPORTANCE OF ILLUMINATION**

At the present time, the Office of Civil Defense is not stocking community shelters with any emergency illumination equipment. This does not mean that illumination is not important. The reason for not including flashlights or similar devices is the belief that a large proportion of fallout shelters will retain the use of normal electric power and, therefore, normal illumination. But the possibility of extended periods of darkness in a community shelter should not be ignored. There are few, if any, more difficult management problems than maintaining control of a group under adverse illumination conditions, including perhaps total darkness. Shelter living will be austere and emotion laden under the best of circumstances. When one adds the impact of extended periods of darkness, the survival goal becomes harder to achieve.

## **MANAGEMENT GOALS**

The responsibilities of management in regard to illumination are: (1) to ensure that as many portable auxiliary lighting devices are brought into shelter at entry time as possible, (2) to control the use of emergency lighting in the event of normal power failure, and (3) to evaluate the importance of illumination in establishing locations for different shelter activities.

## **NORMAL SHELTER ILLUMINATION**

### **Equipment and Supplies**

Whether the shelter has incandescent or fluorescent lighting would seem to make little difference so long as the amount of illumination is sufficient. There are different characteristics of these sources, however, which should be known to shelter management because of the effects that these differences might have under certain shelter conditions.

1. Fluorescent lights. There is little or no glare from this type of fixture. Light is fairly evenly distributed.

Fluorescent lights produce only one-fourth as much heat as do incandescent bulbs giving the same amount of light. This is probably the most significant feature of fluorescent lighting in-shelter.

The coating of the fluorescent tube contains substances that can have toxic effects if introduced into the body through cuts. Therefore, should breakage occur, broken pieces should be picked up very carefully and disposed of immediately.

2. Incandescent lights. Incandescent lights are more reliable than fluorescent, especially if there is some impairment of the commercial or auxiliary power supply which results in frequent voltage dips.

#### **Procedures and Guidelines**

1. Illumination recommendations for shelter activities. It has been observed that when the situation demands, people can successfully perform exacting tasks under lighting conditions which would normally be thought of as wholly inadequate. Most shelter functions such as eating, toilet use, and general maintenance could be adequately conducted in light levels between one and five footcandles (a well-lighted business street measures about 2.5 footcandles). Of course, higher levels are desirable and would facilitate the efficiency with which these activities could be accomplished.

Medical areas will require the most light, especially if extensive medical treatment, such as surgery, is involved. Though 20-50 footcandles would represent poor lighting for such activities, it should be possible to function at these levels without great difficulty. For some medical functions, levels as low as ten footcandles would prove sufficient.

Lights in the sleeping area should be of low intensity though bright enough to permit free movement of the shelterees.

Where conditions require, materials can be read under very substandard illumination. Because of individual differences in the ability to read in poor lighting, the manager should recruit persons, very likely younger people, who are able to read best under these conditions.

2. Control of illumination levels. Control of lighting in all areas can be accomplished by one of two methods. The first involves differential switching where separate switches control different lights. When, however, switches do not provide sufficient control, it will be necessary to manipulate light levels by loosening or tightening bulbs in their sockets. This holds true whether lights are of incandescent or fluorescent type.

It may be necessary to improvise some means for reducing glare if the only light sources are bare incandescent bulbs. This is especially true for sleeping areas.

3. Maintaining the diurnal cycle (day-night cycle). Maintenance of the diurnal cycle may prove to be an important factor in shelter organization and shelteree morale. The cycle helps to maintain the concept of the passage of time in days and, as such, provides a measure of length of stay in-shelter. It also provides reference points for projected time of exit from the shelter.

## **EMERGENCY LIGHTING**

### **Equipment and Supplies**

The following types of devices may be present in some shelters.

1. Generator lighting. The lighting capability from in-shelter generators is the most desirable, since, with sufficient fuel, moderate lighting can be provided for the duration of the shelter stay. Because auxiliary generators do not usually provide power equal to that supplied commercially, it will be necessary in many cases to reduce the number of lights in use when changing over to an auxiliary system.

2. Battery-powered lighting. Battery-powered light sources are valuable in offsetting the effects of a prolonged total power failure. Their portability makes them especially useful. Because of the necessity for preserving battery strength, battery-powered devices should receive carefully controlled use, especially where battery replacements are not readily available.

3. Other light sources. Non-electric light sources, such as kerosene lamps, candles, cigarette lighters, matches, and open flames in general, should be used only under emergency conditions and then only for short periods of time, especially in those shelters with natural ventilation. In addition to the effects on the shelter atmosphere, light sources requiring an open flame constitute a definite fire hazard.

#### **Procedures and Guidelines**

Unless the auxiliary illumination equipment is extensive or the shelter stay is known to be a short one, emergency lighting will have to be strictly controlled by shelter management. This may mean no lights used without management authorization. In extreme cases, it may even be necessary to implement brief, planned periods of darkness to conserve limited light resources. In above-ground shelters, enough natural light may be present in shelter areas to allow for the necessary activities to be carried out, at least for the period of daylight.

### **AUXILIARY POWER**

Shelters using various types of equipment, such as forced-ventilation systems, will be dependent upon a source of power to operate the equipment. Because OCD does not stock auxiliary power supplies at present, most shelters will have to rely upon normal electric power. Some shelters, however, are equipped with auxiliary sources of power for emergency use. The following pages describe some management considerations in the use of emergency power systems, without going into any technical details about operation or maintenance.

## **Equipment and Supplies**

1. Motor-driven generators. Diesel or gasoline engine-driven generators offer the greatest emergency power capability. However, there are sources of difficulty with management implications in operating a motor-driven generator in the shelter. These are described under Procedures and Guidelines.

2. Battery power. Large, dry cells to power "trouble" lanterns, portable radios, and similar equipment can be useful within limitations.

Some of the constraints upon the use of battery power are their limited power without recharging and the fact that machinery and lighting systems will usually require special adaptation for battery operation.

3. Manual generators. Although this type of capability can offer little more than battery-strength power, manually operated equipment has few of the drawbacks that are inherent in other types of machinery. Even if other equipment is available, the back-up capability offered by manual equipment should not be overlooked. Bicycle-type generators, for example, could supply low-level lighting almost indefinitely. A similar arrangement for the mechanical operation of exhaust fans would also be valuable should the primary system fail.

## **Procedures and Guidelines**

An initial managerial responsibility involves preparation for activation of emergency power equipment in the event of commercial power failure. During shelter entry, auxiliary power units should be checked for operability by someone familiar with the system. The exhaust system is a critical checkpoint when the generator engine is located inside the shelter space or if fumes could enter from an adjacent engine room. The quantity of fuel immediately available will determine whether equipment can be used continuously. If other fuel is stored nearby, it should be transferred to the shelter area if possible.

Some of the management considerations in the use of motor-driven generators are:



1. Exhaust. If the exhaust system is faulty, the presence of carbon monoxide from the engine becomes a real danger. Engine exhausts should be vented, in a closed system, through pipes or ducts leading outside the shelter building.

2. Heat. Internal-combustion engines generate heat, especially when in continuous operation. Engines located within the shelter may raise temperature and humidity, thereby affecting shelterees' thirst, energy levels, etc.

3. Fuel. Fuel in or near the shelter constitutes a fire hazard. Extreme caution must be exercised in operations involving fuel.

4. Motor-fuel consumption. Fuel consumption should be monitored. If a shortage appears to be developing, and if there is little hope of replenishing the fuel supply within a reasonable period of time, intermittent use of equipment is suggested.

5. Location. Frequently, existing engines will be located in radioactive areas, creating problems of access by repair personnel in the event of equipment trouble.

6. Noise. While not directly related to survival, the generator noise level can have important psychological effects. Machinery could be especially disturbing during sleeping hours.

# **CHAPTER 15. COMMUNICATION**

## **IMPORTANCE OF COMMUNICATION**

A communications capability provides shelter management with an instrument for coordinating every phase of shelter living, and allows the manager to establish and maintain his authority.

Communication contributes to the improvement of shelter morale by alleviating the tension of the unknown. Information that is provided to shelterees serves to control rumors and lessen anxiety and fear. Communications in the form of instructions provide shelterees with knowledge of their duties, and of the rules and regulations that apply in the shelter. In turn, information from the shelterees will aid management in the anticipation and elimination of shelter problems.

In addition, some form of communication with the outside world is necessary in order for management to make decisions relating to partial and full emergence from the shelter.

## **MANAGEMENT GOALS**

Management objectives in regard to shelter communications are: (1) to establish a capability to communicate both within the shelter and, if possible, with the outside world, (2) to implement procedures for regular communication from management to the population at large, and (3) to implement procedures that would allow the shelter population to communicate with its leaders.

## **ESTABLISHING A SHELTER COMMUNICATIONS CAPABILITY**

### **Equipment and Supplies**

Currently, shelters are not stocked with communications equipment by the Office of Civil Defense. However, many shelters will have access to equipment for communicating within the shelter and also with the outside world.

1. External communication equipment. If phone lines and circuits remain operable, telephone communication will be an important means for communications to and from the outside world. However, phone use will have to be strictly controlled.

AM radios will be the source of Emergency Broadcast System (EBS) messages. A portable radio is especially valuable, because of its independence of electrical power.

In the absence of electronic means of communication, runners may be sent out on short trips to obtain information or communicate with nearby shelters or control centers, once the radiation has been reduced to a permissible level.

2. In-shelter communication equipment. In small shelters, the manager may be able to project his voice enough to be heard by the entire shelter population. In larger shelters, when communication with the total group is necessary, it may be possible to improvise megaphones from rolled paper, cardboard, or magazines. In large multi-space shelters, the manager will be unable to communicate with the entire shelter population without electronic aids. In large shelters, therefore, the role of the group leader will be vital in communicating information between the manager and the shelterees.

Written notices may be posted on regular or improvised bulletin boards. In addition, signs and posters dealing with rules and procedures may be posted throughout the shelter.

Those shelters equipped with P.A. systems, battery-powered megaphones, or intercom systems require persons to maintain and operate them. Equipment that would constitute a serious drain on auxiliary power sources should be used sparingly.

#### **Procedures and Guidelines**

1. Inventory and check equipment. An inventory should be taken of all available equipment which has been brought into the shelter and is operable. The manager could request that transistor radios or other

equipment that may be used in communication should be lent to the management staff for use during the shelter stay.

2. Establish a communications area. A communications area located in or near the management area should be established as soon as possible.

3. Maintain control over equipment. Stringent control over equipment is necessary. Only authorized personnel should be permitted use of the communication equipment. Personnel should be assigned to protect the instruments when they are not in use.

4. Establish an internal communications plan. As part of the process of shelter organization, procedures should be determined for disseminating different categories of information from management to shelterees and vice versa. Examples of categories of information are: (a) emergency: critical information pertaining to danger or threat to survival, (b) operational immediate: important information necessary to carry out shelter activities, and (c) routine: non-essential information.

## COMMUNICATION TO THE SHELTER FROM EXTERNAL SOURCES

### Types of Incoming Messages

Emergency Broadcast System (EBS). This system replaces CONELRAD. Through it, emergency information including messages from the President and National, regional, state, and local broadcasts will be disseminated to the public.

The radio stations that are part of EBS will continue to broadcast on normal frequencies at normal power during civil defense emergencies. However, they will not use their call letters. EBS stations have, or will have, fallout protection built into key operating areas of the stations, and will be provided with emergency generators to assure an uninterrupted power supply.

Control centers. In time of attack, various levels of government will be operating within control centers.

The local control center will be linked with shelters in the area, radiological monitoring stations, medical centers, and emergency operating centers of higher government. Among the types of information that might be supplied by the centers are:

1. Information on local environmental conditions.
2. Information pertaining to time of shelter exit and recovery operations.
3. Decisions reached by government concerning in-shelter and/or recovery problems.
4. Requests for specific information.

Other shelters. Under certain conditions, information exchange will take place between shelters directly. For example, a shelter may lose communication with the control center but may retain a capability to reach a nearby shelter.

#### **Procedures and Guidelines**

A member of the communication team should monitor all incoming messages. If the shelter contains people with stenographic training, it would be useful to assign them to the communication area to obtain an accurate transcript of the message(s) for the communications log. All messages should be entered in the communications log (see Appendix A).

The content of all incoming messages must be evaluated by the manager based upon the source of the information, other information available to him, and the possible effects of the messages upon the shelter population. Decisions should then be reached as to when and how information should be presented to the shelterees. Pertinent information should not be withheld from the population. However, much of the incoming information may be technical in nature and not of interest to the average shelteree. Also, the content of specific messages may be misinterpreted by the population, unless put in the proper context, with unfavorable consequences for shelter morale and, possibly, maintenance of order.

## COMMUNICATION FROM THE SHELTER TO EXTERNAL RECIPIENTS

### Types of Outgoing Messages

1. Reports to the control center. Most external communication from the shelter will be with a control center. Likely information to the control center includes:

- a. Reports of shelter emergencies.
- b. Regular shelter status reports.
- c. The state of the radiological environment outside the shelter.
- d. Responses to specific inquiries by the control center.

### Procedures and Guidelines

The emergency operations plan for a community may specify the types and times for communication between shelters and control centers. In the absence of pre-planned procedures, control centers may inform shelters of communication requirements and constraints after the attack. In any event, shelter management should be aware of the many responsibilities of the control center and should not burden emergency operations centers with non-essential messages.

## COMMUNICATION FROM THE SHELTER MANAGER TO SHELTEREES

### Types of Information to Convey to Shelterees

Information pertinent to shelter entry and initial orientation.

1. Directions to proper location within the shelter as the shelterees enter.
2. Introduction of manager and staff--establishment of the authority of the manager.
3. Reassurance about the protective capabilities of the shelter.
4. Reassurance that changes in initial organization will be made later on as needed (for example, uniting families).

5. Statement of important rules that must be put into effect immediately.
6. Assignment to initial duty posts of vital significance.
7. Basic protective actions that all shelterees can take.

Information pertinent to the post-entry and routine phases.

1. Review of general conditions in the shelter.
2. Review of conditions external to the shelter.
3. Reports on radiation levels at indicated intervals from official civil defense broadcasts.
4. Reports on the state of the Nation.
5. Local damage reports.
6. Special emergency notices issued from civil defense.
7. Description of shelter facilities and available supplies.
8. Statement of manpower requirements needed in-shelter.
9. Reassurances and compliments to shelterees and review of shelter-wide problems.
10. Deflation of rumors that may have spread through the shelter.

Information pertinent to the pre-exit phase.

1. External radiation levels, including remaining "hot spots."
2. Estimated time for shelter egress, and how long it is safe to stay out.
3. Information as to where shelter supplies may be replenished.
4. Post-attack plans, detailing where people should go and what they should do after shelter egress.
5. Review of training highlights in such fields as decontamination and first aid.

### **Procedures and Guidelines**

1. Initial instructions and briefings. As the shelter is being filled, instructions should be provided to the population concerning where they should proceed and what they should do. Traffic assistants can be used to pass along necessary information at entry time. As mentioned previously, the entering population should be continually reassured about the capabilities of the shelter.

After the shelter is filled and before the shelter is completely organized, there is a great deal of important information that must be presented to the population within a short period of time. This should be accomplished through one or more short shelter briefings by the manager or his key deputies.

In cases where the manager cannot speak directly to all shelterees, it is advisable that early in the shelter stay he arrange to speak to every group in-shelter, if only to introduce himself.

2. Daily briefings. At least once a day, a briefing should be given to all shelterees covering the topics listed under post-entry information.

The briefings should be a scheduled activity. It is important that shelterees know that at least once a day, at a specific time, they will be brought up-to-date on the shelter and environmental conditions. Even if there is no new information to report, the daily briefings will have important purposes. For one, the news that there is no new information, no change in the situation, is important information. Secondly, the daily briefing can be used to puncture the rumors that will inevitably arise in the shelter. Also, a scheduled briefing serves as a sign to shelterees that management recognizes the importance of communication to the population.

3. Unscheduled communications. Information pertaining to emergencies or requiring immediate action must be communicated rapidly to the population as the situation arises.



One procedure is to select a simple code word or, in a small shelter, a gesture such as raising a hand to preface important, unscheduled information. During the initial orientation, shelterees can be informed that when they hear this word or see this gesture they should immediately quiet down and listen for an announcement.

## **COMMUNICATION FROM SHELTEREES TO MANAGEMENT**

### **Types of Information to Convey to Management**

The following are types of information that management needs from shelterees.

1. Information obtained from the registration forms which will supply the basic information on the background, special skills of the population, etc.
2. Reports on equipment and supply status.
3. Reports on inadequacies in material, shortages, or breakdowns in procedures.
4. Health status.
5. Requests for changes in the organization of the shelter.
6. Requests for assistance in carrying out shelter duties.
7. Reports on the general progress of routine shelter operations.
8. Reports on emergencies.

### **Procedures and Guidelines**

1. Utilizing the chain of command. It should be made clear to the shelter occupants that it is impossible that every problem be taken directly to the manager and solved by him. It is the function of the group leaders and of management staff members to provide a degree of isolation between the manager and the complaints of individual shelterees.

A set of procedures should be implemented to govern non-emergency communications between shel-

terees and management, using the chain of command that has been set up in a particular shelter.

This chain of command does not necessarily hold for all types of shelteree problems. A medical emergency or a serious violation of shelter rules will require the immediate attention of the manager and the appropriate team leaders.

2. Group sessions. It may be beneficial to have occasional group sessions in which a shelter group, or even an entire small shelter, can discuss problems with its leaders. Group sessions may provide management with a better over-all picture of the nature and extent of their problems. Group sessions present the shelter manager or his representative with the opportunity to answer shelteree questions, and discuss shelter policies directly with a fair-sized number of shelterees. A group session should be called upon shelteree request and/or if management feels it will serve a useful purpose

# CHAPTER 16. TRAINING

## IMPORTANCE OF TRAINING

There are several reasons why training is an essential activity in a shelter. Through training, persons will be provided with eagerly anticipated information about their current status and what is likely to occur in the future. In the absence of accurate information, rumors abound, doubts may grow, and shelteree resistance to management authority may increase.

A second purpose of training is to provide each person with the information he needs to know to survive, do his job, and get along with his fellows while in the shelter. Thirdly, in-shelter training should help prepare the population for survival in a potentially hostile post-shelter world.

Training provides a realistic and useful way to occupy shelterees during the day, and is an especially worthwhile way to channel the energies of school-age children.

## MANAGEMENT GOALS

The shelter manager's training responsibilities consist of (1) supervising the development and implementation of a training program appropriate to the needs and capabilities of the population, and (2) providing or supporting shelteree motivation to participate in training activities.

## ESTABLISHING A TRAINING PROGRAM

### Shelter Training Subject Matter

Generally, the content of an in-shelter training program will fall into the following categories.

1. Training for in-shelter living. What each occupant should know about the shelter and its facilities.

emergency procedures, first aid, psychological problems, and similar subjects.

2. Training for post-occupancy living. What each shelteree should know about the recovery period, including where to obtain food, water, medical care, and shelter, or how to provide for these needs on one's own.

3. Training for management and technical positions. What each untrained shelteree who has been selected to fill a management or task team position must know about his job.

4. Ongoing education for children. A limited continuation of schooling for youngsters, primarily those of grade-school age.

#### **Supplies and Equipment**

Few shelters will have elaborate supplies and equipment with which to implement a training program. However, in almost all shelters, some materials will be available or can be improvised for use in training. These include:

1. Stocked or commonly available materials.

- a. Manuals, handbooks, and guides covering various aspects of shelter living, either stocked in-shelter or brought in by previously trained personnel.
- b. Textbooks.
- c. Children's books for ongoing educational activities.
- d. Blackboards or bulletin boards.

2. Materials useful for improvisation of training supplies.

- a. Newspapers, magazines, cardboard for writing paper.
- b. Lipsticks, other cosmetic sticks for crayons.
- c. Magazine rolled up for a megaphone.
- d. Cardboard for bulletin board.

### **Procedures and Guidelines**

An ideal training area may be difficult to locate. Insofar as possible, the training area should be amply illuminated and ventilated, free from distractions, and have sufficient space so that participants can sit comfortably and both see and hear the instructor.

The method of training that is most effective for a particular course depends upon the content of the course, the size and configuration of the shelter, the educational level of the shelterees, the make-up of the training team, and the educational materials and aids available in-shelter. Among the training methods that will find use in a shelter are: (1) lecture, (2) demonstration, (3) small-group discussion, (4) on-the-job training, (5) individual instruction, and (6) self-instruction.

In order for a training program to be successful, procedures must be geared to the condition of the shelter and its occupants. The following guidelines are applicable to a wide range of shelter training situations.

1. Make the training content meaningful and useful.
2. Maintain a slow pace; continually stress and review major points.
3. Invite shelteree participation; permit shelterees to try out procedures.
4. Vary the training method to maintain attentiveness.
5. Use all available visual aids.
6. Relate training program to estimated duration of shelter stay. For example, if a short shelter stay is predicted, the training program should stress post-shelter content at the expense of extensive orientations on in-shelter adjustment.

Generally, training sessions should begin after the shelter has been organized, a schedule implemented, and a training team selected and given an opportunity to prepare its program. Among the first types of training that should be carried out in-shelter are for previously untrained management or task team

personnel. Also important in the early stages is instruction pertaining to shelter rules and procedures. Training for post-shelter living and ongoing education activities for children can begin after the shelter has settled into a routine phase.

**ENHANCING ADJUSTMENT  
TO SHELTER LIVING**

**6**

**Psychological Support**

**Religious, Recreational, and Service Activities**

# **CHAPTER 17. PSYCHOLOGICAL SUPPORT**

## **THE NEED FOR PSYCHOLOGICAL SUPPORT**

Nuclear attack will subject shelterees to many stresses. In the minds of most shelterees will be thoughts about the feared weapon effects, loss of loved ones, disruption of normal patterns of living, shelter confinement, and an uncertain future.

Under such conditions, it will be only normal for people to react both emotionally and physically. Most people should be able to adapt to the realities of the situation with relatively mild and temporary symptoms of emotional and/or physical upset. Some shelterees, however, may suffer more prolonged and serious reactions to the stresses of nuclear attack.

In addition to dealing with the general human reaction to disaster, the shelter manager will have to cope with the special needs of children and old people, as well as problems which some shelterees may bring with them to the shelter, such as alcoholism, drug addiction, and mental illness.

## **MANAGEMENT GOALS**

The goal of psychological support is to buoy up the morale and mental well being of shelterees, insofar as possible under conditions of a nuclear attack.

This may be accomplished by: (1) helping to alleviate the mental anguish of individuals who are suffering from reactions to disaster, and (2) preventing psychological problems from creating a dominant mood which could be detrimental to shelteree adjustment.

However, there are very real limitations to what can be accomplished in-shelter with limited staff and facilities. Shelter management should try to help as many shelterees as possible to adjust to the realities of the disaster situation. It cannot hope to provide a total program to control reactions to disaster.



## **GENERAL PRINCIPLES OF PSYCHOLOGICAL SUPPORT**

The principles that underlie psychological support in a shelter may be grouped into the four areas discussed below. Some of these points have been discussed in another context in the first chapter of this document.

### **Effective Management**

Probably the most important source of psychological support to shelterees will be effective management. Effective management is a product of several factors. The first is personal leadership. In a crisis, people will seek and readily follow a leader who can provide direction, inspire confidence, and help to structure a disordered situation. Effective management is demonstrated by the successful organization and conduct of shelter operations and activities. Patterned routines such as feeding, sleeping, medical care, and sanitation will help to define the new environment as well as establish as much continuity as possible with pre-shelter routines. The third ingredient in effective management is communication with the shelterees to help them define what has happened, is happening, and can be expected to happen.

### **Interaction with Others**

Sympathetic and friendly interaction with others is one of the keystones of successful psychological support. The manager may enhance such interactions in several ways, particularly by strengthening shelteree ties to their community groups and allowing groups to express problems and exchange ideas.

### **Goal-Oriented Behavior**

When an individual is under stress, two important sources of psychological support are: (1) having something useful to do, and (2) knowing how to do it.

In assigning tasks, the manager should be aware of the likely effects of stress upon shelteree performance, including his own performance. People under stress may tend to:

1. Act impulsively and with a feeling of inappropriate urgency.
2. Concentrate their attention on the immediate task and have a lack of awareness of larger problems.
3. Lapse into old habits of response and forget what they have been trained to do under disaster conditions.
4. Do less well with complex and skilled tasks than with simple tasks.

If the manager can recognize these potential reactions to job assignments and make allowances accordingly, the supportive value of task performance will tend to be increased.

#### **Control Measures**

Psychological support in the shelter should emphasize kindness, reassurance, and sympathy. Actions which might be interpreted as threatening or punishing should be taken only if a person's behavior becomes dangerous to himself or others, or becomes so disturbing as to affect shelter operations. These measures should be limited to the following.

1. Use of drugs. Phenobarbital is supplied in OCD-stocked shelters. Directions for its use are located in the medical kit. If a qualified medical person is available to prescribe and administer, its use may be considered more or less routine rather than extreme.

2. Confiscation of potentially dangerous property. Shelterees may have or may attempt to obtain property that can be dangerous to themselves or others. Disturbed persons, particularly those with delusional symptoms, will, at times, appropriate items that can be used as weapons. Persons who are alcoholics and drug addicts may go to great lengths to obtain alcohol or drugs. Other disturbed persons may appropriate essential shelter supplies as a source of security.

If such persons refuse to give up potentially dangerous items after management has explained the

reasons for relinquishing them, it may be necessary to confiscate the property through the efforts of the security team.

3. Restraint. The use of restraint should be avoided, if at all possible, not only because it can be interpreted as punishment, but also because it will frequently antagonize disturbed persons and make them more violent and noisy.

If restraint cannot be avoided, wrapping a person in sheets, blankets, or similar items is probably the most effective and safest method of restraint. Use of rope, belts, and ties should be avoided, if possible, because of the likelihood of interfering with circulation.

A restrained person should be removed to a separate area, if possible, where he should be constantly attended and kept as comfortable as possible. As soon as medical personnel or the manager judge acute danger to have passed, he should be released.

## **PSYCHOLOGICAL FIRST AID**

### **The Nature of Psychological First Aid**

Symptoms of psychological reaction to disaster will normally begin to decrease spontaneously within a few hours. Whenever this spontaneous recovery fails to occur, the individual may require the assistance of "psychological first aid" to help to speed recovery.

Psychological first aid is the immediate support provided for individuals in emotional trouble. In general, the earlier psychological first aid is given, the more effective it will be. Through a brief interview, sympathetic encouragement, and job orientation, an attempt is made to return moderately disabled persons to relatively normal functioning in a short time, and to help more serious cases to be as comfortable as possible. Arrangements should also be made for referral to the most qualified member of the medical team for possible dispensing of stocked phenobarbital.

### **Psychological First Aid Procedures**

The basic technique of psychological first aid is a relatively brief (up to ten minutes) interview with each person having difficulty recovering from disaster reactions. An interview is usually initiated upon the request of the person seeking aid or upon request of a group leader or staff member who perceived the problem. A single session may be sufficient for some persons; a series over a period of days may be required for others.

The major purposes of the psychological first-aid interview are to: (1) permit expression of shelteree problems, (2) provide reassurance to shelterees, (3) identify potentially dangerous persons, and (4) identify useful skills among interviewees which they can pursue after they have sufficiently recovered.

Psychological first aid interviews should also reveal which individuals are ready for a useful role in the shelter. Participation in very simple tasks such as clean-up and routine clerical activities may provide a valuable first step toward fuller readjustment and participation. For those individuals whose reactions persist, continued assignment to simple tasks suited to their abilities and needs may occupy them and help to minimize the disturbances which they can create.

In administering psychological first aid, personnel should be prepared to cope with the following difficulties.

1. Their own reaction. Personnel must be able to submerge their own reactions to disaster, and avoid conveying a sense of superiority that they have been successful at doing this.
2. Fatigue.
3. Hostility from shelterees. Some of the hostility held for the shelter manager and other figures in authority may be directed against psychological first aid personnel.
4. The non-responsiveness of disturbed persons. Even though some persons will not respond to attempts to talk with them, the aid persons

should continue the interaction unless more harm than good seems to be resulting.

## **TYPES OF MALADAPTIVE RESPONSES**

A maladaptive response refers to behavior that seriously interferes with an individual's adjustment to the disaster situation or with the organization and operation of the shelter. It is beyond the scope of this document to present a systematic discussion of severe emotional reactions and their treatment in-shelter. The objective of the following brief and necessarily oversimplified description of major types of maladaptive responses is merely to acquaint the manager with some of the more serious emotional conditions that may be found in any community shelter.

### **Fear Reactions**

In a nuclear disaster, almost everyone will be afraid to varying degrees. However, fear reactions may be so severe as to seriously incapacitate some people.

Extreme fear will be expressed in many ways: as an unwillingness to leave a particular place; a need to avoid certain people or almost total dependence on others; orally, in the form of screams, moans, or other expressions; and in its most dangerous form as panic or uncontrollable flight.

### **Physical Reactions**

For a few people, disaster stress may result in more severe and long-lasting physical symptoms than would normally be experienced initially. This includes completely debilitating stomach distress, imaginary symptoms of radiation sickness, functional blindness, or loss of arms and legs.

### **Depressed Reactions**

It would be abnormal for people not to have initial feelings of depression in the event of a nuclear attack. Most people, however, will be able to function after a while, in spite of their depressed reaction.

There will be some people who may be so overwhelmed by grief or hopelessness as to be unable to function in any coherent fashion. They may either withdraw from social contact or may constantly impose an expression of their own problems on others. Loss of will to live and thoughts of suicide may be common among persons with depressed reactions.

#### **Overactive Reactions**

Many people will react to disaster stress by being unable to concentrate, sit still, or remain at any one task. When this reaction becomes extreme, persons may wander aimlessly or may engage in activity violent enough to endanger themselves or other people.

Some individuals suffering from overactive reactions may challenge established management by becoming spokesmen for militant action; that is, they may want to do something about shelter problems without necessarily knowing what the problems or the appropriate solutions are.

#### **Dissociative (Out of Contact) Reactions**

Dissociated persons will appear to be "out of contact." In mild cases, they will give an impression of shocked helplessness, while in severe cases they may be totally mute and not react at all to other people or physical needs.

#### **Delusional Reactions**

The fallout shelter situation will have an element of unreality for everyone. To some shelterees, this note of unreality may become dominant. Normal cautiousness and doubt about a strange and stressful situation may give way to deep-rooted suspicion of fellow shelterees. In extreme cases, the individual may develop delusions of shelterees being in league with the enemy.

### **SPECIAL PROBLEMS**

The shelter manager will be faced not only with the problems of psychological reactions to disaster, but also with the unresolved problems of individuals

which existed prior to the attack and which may be amplified by disaster. Two such problems are alcoholism and drug addiction.

### **The Use of Alcohol**

Persons who are dependent upon alcohol in their normal lives may bring a supply of alcoholic beverages with them to the shelter.

If any significant quantities of alcohol are present in the shelter, the manager is faced with the choice of (1) confiscating the alcohol and using it as a medical resource, (2) confiscating it and storing it away until time of exit, or (3) making no effort to confiscate supplies of alcohol.

None of these alternatives is likely to be ideal. Confiscation may pose a threat of conflict and challenge to authority. Failure to apportion supplies of alcohol when individuals may feel a need for them may create tensions between shelter management and some of the shelter inhabitants. Uncontrolled consumption of alcoholic beverages may result in excesses which could seriously disrupt the shelter.

If a person who is an alcoholic is without a source of supply in-shelter, he may attempt to drink hair tonics, medicinal alcohol, or other harmful substances, and may have to be forcibly restrained from doing so. He may also try to leave the shelter in search of supplies.

### **The Use of Drugs**

Drugs stocked in the shelter will be required for medical and psychological treatment. Attempts on the part of drug addicts to appropriate drugs stocked in the shelter should be forcibly resisted. If there is an alcoholic or addict in-shelter who is experiencing withdrawal symptoms, doses of phenobarbital, if available in consideration of other shelter needs, may be prescribed by the most qualified member of the medical team, in accordance with the treatment recommended in the medical-care booklet packed in the medical kits.

Although seldom fatal, withdrawal symptoms are very painful and disturbing to those who witness their effects. The person suffering such symptoms should be kept as quiet and comfortable as possible, and constantly attended by at least one and preferably two able-bodied persons.

The addict beginning to suffer or fearing withdrawal is likely to leave the shelter in search of drugs. It may be necessary to apply restraints to both the drug addict and the alcoholic to prevent them from harming themselves and others.

## **CHILDREN AND THE AGED**

Two classes of shelterees for whom the shelter manager may have to consider somewhat specialized psychological support are children and the aged.

### **Children**

Children are often more psychologically resilient than adults, particularly if they can face an emergency in familiar surroundings with family and friends. In general, children tend to take their behavior cues from adults. If family or friends exhibit fear or grief, the children will tend to show similar reactions. However, children exposed to the effects of a nuclear attack may become severely upset even if adults remain outwardly calm. Such children will need special care and support.

To reduce the emotional stress which children may experience, it is suggested that:

1. Children be kept with their parents or friends.
2. They be given constant reassurance about the present and future and, in turn, be given opportunities to express their feelings.
3. Children who enter the shelter without family or close friends should be assigned to a substitute parent (a mature adult who is aware of the needs of children).



4. Children be provided with supervised recreation and educational activities, and that older children be given useful tasks to perform.

Considerable blocks of time should be scheduled for this activity. It requires serious attention by shelter management, because the behavior of children can be a potent factor in the maintenance of order in-shelter.

#### **The Aged**

Elderly people are likely to present special psychological problems in the shelter. In particular, some aged people (1) may be prone to confusion in new surroundings and situations, (2) may be "in the way" of operations and activities which can be annoying to other shelterees, (3) may find it more difficult to accept the realities of a nuclear attack than younger people, or (4) may tend to be somewhat rigid in their views with respect to appropriate behavior on the part of others.

In the event such problems emerge, a special service team to assist the aged in their adjustment to the realities of the external situation and the problems of shelter living should be established.

## **CHAPTER 18. RELIGIOUS, RECREATIONAL, AND SERVICE ACTIVITIES**

### **IMPORTANCE OF AN ACTIVITY PROGRAM**

An organized effort by management to engage shelter occupants in spiritual, service, and recreational activities will result in increased morale and greater motivation on the part of the population. An activity program is important for a number of reasons. It tends to reduce negative emotional states, such as fear or grief. It also aids in the breakdown of interpersonal barriers leading to greater cohesion and cooperativeness among shelterees. Planned social and recreational activities provide management with the means to control unwanted activities, such as gambling, quarrelling, and aimless milling about. Planned activities also help make time pass more quickly. Participation in service-type activities makes many people feel a sense of having contributed something worthwhile, thus giving them relief from tension and raising their morale. Finally, religious activities will be a source of comfort and strength to many shelterees.

### **MANAGEMENT GOALS**

The goals of an activity program are twofold. First, the manager should supervise the establishment of a program of social, spiritual, and service activities in-shelter. Secondly, he should encourage the shelter population to participate in this program on a voluntary basis.

### **ESTABLISHING AN ACTIVITY PROGRAM**

#### **Equipment and Supplies**

Many shelters will have minimal material for free-time activities, including Bibles, paperback books, and board games. If not actually stocked, such materials may be brought into the shelter by the incoming population. The ingenuity of shelterees in improvising materials such as checkerboards and pieces, cards, etc., will be an important factor in the success of a

recreational program. The mere act of creating these materials provides a valuable cohesion-producing experience.

#### **Procedures and Guidelines**

Among the conditions that must be assessed prior to initiation of recreational activities are: available space, shelter configuration, temperature, ventilation, illumination, and food and water status. For example, if the shelter temperature is high, physical exercise should be avoided.

Free-time activities in-shelter should be closely tied to the needs and characteristics of the population. Early in the shelter stay, voluntary activities are likely to include service and religious activities. Spectator entertainment would be inappropriate during the initial hours of occupancy. After the first few days of the shelter stay, lighter and more relaxing activities can be introduced into the schedule.

Such factors as age, sex, socio-economic status, ethnic and religious backgrounds, skills, and interests should be considered in establishing an activity program. A variety of activities should be offered which shelterees may enter into on a voluntary basis. Shelterees should be encouraged but never coerced to participate in free-time activities.

### **SHELTEREE SERVICE ACTIVITIES**

Service activities include: caring for infants, young children in groups, and the ill and injured; giving psychological first aid; and enhancing the appearance of the shelter.

These should be regarded as important morale-maintaining activities, whose benefits have been discussed in previous chapters.

The care of children is an especially critical activity that should not be left solely to the responsibility of parents or one individual on an unorganized basis.

It is best to establish a roster of personnel interested in participating in specific service activities. As many people as possible should be encouraged to participate in these activities.

## **RELIGIOUS ACTIVITIES**

At the request of the shelter population, religious activities should be included in a shelter program. Depending upon the circumstances, three kinds of religious activities seem appropriate: (1) non-denominational services, (2) denominational services, and (3) self-initiated prayer and meditation. Participation in religious services should be voluntary.

When formal religious leaders are not available to conduct denominational services, non-denominational services are the practical solution. Such services may incorporate non-denominational prayers, inspirational talks, periods of silent meditation, and the singing of hymns. The type of service conducted in the U.S. military services is an excellent guide.

Denominational services are more likely to stimulate religious feelings in people who have strong ties to their own religion. If possible, denominational services should be conducted privately, in a separate room or semi-enclosed space.

Self-initiated prayer and meditation cannot be planned as can religious services. However, "quiet" hours could be used for such religious activity. One way such self-initiated activity can be stimulated is by providing space and time for individual prayer and meditation.

These should be regarded as important morale-maintaining activities, whose benefits have been discussed in previous chapters.

## **PHYSICAL FITNESS ACTIVITIES**

No significant physical impairment results from two weeks of relative inactivity. However, some

exercise may be desirable to condition shelterees for the rigors of post-shelter life, dissipate unused energies, and alleviate insomnia. The two types of exercise most suitable for shelter environment are: (1) self-initiated mild exercise, and (2) calisthenics led by trained group leaders for short periods of time. Isometric exercises appear particularly suited to the shelter situation.

There are severe limitations to a physical fitness program in-shelter due to the fact that vigorous physical activity may liberate unwanted heat. Also, shelterees may need to conserve their body energy and fluids because of rationed food and water. When temperatures are high or food or water scarce, such activities should be suspended.

### **ARTS AND CRAFTS**

Arts and crafts can sustain the interest of shelterees, especially school children, for relatively long time periods. They require little physical exertion, thereby generating little heat or noise, and products can be shown and admired. Participants may be encouraged to make posters that can be placed in the shelter to remind the population of important shelter rules, or to signal the location of special areas in the shelter.

Emphasis must be placed on improvisation and ingenuity in using available materials. Some activities would be: pencil sketching, cutting designs from paper, constructing wire figures, and making mobiles.

These activities are best performed in a supervised group in order to ensure effective participation, conservation of materials, lessening of commotion, and clean-up after completion of the activities.

### **SOCIAL AND RECREATIONAL ACTIVITIES**

The recreation team should capitalize on the shelterees' readiness to socialize, and utilize it to break down social barriers and inhibitions.

Social activities considered appropriate to many shelter situations include:

1. Small group games. Such games serve a dual purpose. Individuals can be put to work developing the required materials. Once constructed, these improvised games can be enjoyed by a number of players and onlookers.
2. Discussions. Discussions can focus attention on methods for coping with post-shelter living, or they may be a valuable source of information feedback to shelter managers in the detection of heretofore unvoiced complaints.
3. Group singing. Group singing is an excellent mechanism for developing a spirit of camaraderie and providing an emotional outlet.

### **SPECTATOR ENTERTAINMENTS**

Management should make full use of the talents of professional or amateur entertainers. Skits, plays, and similar entertainment serve the dual roles of keeping participants occupied while providing entertainment for larger groups of spectators.

Spectator entertainments are best held in the evening when shelterees may be most fatigued and in need of non-active entertainment.

### **FREE-TIME QUIET ACTIVITIES**

Quiet periods are essential. People need to have relief from organized activities in a shelter environment. Quiet periods also reduce the shelter noise level. They are particularly helpful at nap-time periods scheduled for young children.

It may be possible to establish some form of library in the shelter which would contain the books that may have been stocked in the shelter and those that shelterees brought with them. During the routine phase, books will become an important morale item,

and management should implement some procedures for ensuring that books get the widest possible distribution.

It should be recognized that many adults will want to nap or simply be by themselves. The recreation team should respect the wishes of those who seek this type of withdrawal.

**PRE-OCCUPANCY  
AND POST-OCCUPANCY  
MANAGEMENT RESPONSIBILITIES**

**7**

**Pre-Occupancy Management Responsibilities**

**Post-Occupancy Management Responsibilities**



# **CHAPTER 19. PRE-OCCUPANCY MANAGEMENT RESPONSIBILITIES**

## **THE IMPORTANCE OF PRE-OCCUPANCY MANAGEMENT PLANNING**

The survival capability of any shelter can be increased dramatically by plans made and actions taken prior to shelter occupancy. If possible, the survival stocks that OCD provides should be augmented. This is especially important for such items as illumination and communication equipment which are, at present, not included in the Federal shelter-stocking program. However, establishing and maintaining the operational readiness of a community shelter is far more than just a matter of procuring supplies and equipment. Equally if not more important are the procedures for organizing and operating the shelter that can be developed in the form of a shelter plan.

In this chapter, some of the major considerations in pre-occupancy management planning are discussed. The two major subdivisions of pre-occupancy management responsibility are: (1) the establishment of operational readiness, and (2) the maintenance of operational readiness.

## **ESTABLISHING OPERATIONAL READINESS**

Establishing operational readiness means bringing the shelter to a state of preparedness, so that it can be put in use at a moment's notice should the need arise. The steps in achieving readiness are described below.

### **Determine Shelter Requirements and Capabilities**

The first step is to determine what survival capabilities the structure provides as it stands, and what is required to reach the desired level of survival capability, which at the very least must be equal to the standards established by the Federal Government in the marking and stocking program.

### **Stock the Shelter**

After determining the requirements necessary to achieve the desired capability level, consideration

should be given to the amounts and kinds of equipment and supplies which will be needed.

1. Valuable supplemental supplies. Consideration should be given to adding the following to the stocks.

- a. Additional sources of water.
- b. Emergency lighting equipment.
- c. Communications equipment.
- d. A set of basic tools.
- e. Some sleeping materials.
- f. Training and administrative materials.
- g. Recreational materials.
- h. Additional medical supplies.
- i. Additional food supplies.
- j. Additional sanitation supplies.
- k. Emergency power sources.

2. Sources of supplies. Supplementary supplies may be procured in a number of ways, among which are provision by local government, purchase by building owner, or adaptation of supplies already in the shelter facility.

3. Getting supplies to the shelter. After determining what supplies are necessary or desirable and the procurement source, arrangements must be made to get the supplies to the shelter. This may be accomplished by local government transportation, volunteer organizations, use of building staff, and commercial hauling, to list a few.

4. Locating supplies in-shelter. The decision as to where to locate the shelter supplies can be a crucial one, especially if it is impossible to store all the supplies in the main shelter area. Supplies should be placed so that (a) they may be easily monitored and inventoried, (b) they remain in good condition, (c) they are safe from unauthorized use, and (d) they can rapidly be brought into the shelter (if they must be stored outside the shelter area).

### **Staff the Shelter**

Some of the factors to consider in staffing the shelter are:

1. The optimum organizational size and structure, given the nature of the shelter and its likely occupants.
2. Methods for selecting and recruiting a shelter management staff.
3. Amount and type of training for shelter staff and likely shelterees.

### **Develop a Shelter Management and Operations Plan**

A shelter management and operations plan is a set of specific and detailed procedures, rules, task assignments, and the like, pertaining uniquely to the organization and operation of an individual shelter. A complete shelter management and operations plan would define:

1. How to get the population to the shelter and into the shelter.
2. How to assume and maintain command of the shelter, with special guidance prepared for the contingency of an untrained manager.
3. The resources of the shelter, with brief instructions on how to use them.
4. How to organize the shelter into core management staff, task teams, and community groups, indicating the specific duties and responsibilities of each position in the organization structure.
5. How to schedule and carry out shelter operations and activities, indicating the activities that are necessary and appropriate at different stages of shelter occupancy.
6. Possible emergencies in-shelter and how to cope with them.
7. Preparation for exit and procedures for handling temporary emergence and full-time exit from shelter; also, management responsibilities in the post-shelter phase.

### **Coordinate with Other Organizations and Agencies**

In developing a shelter capability, coordination with local authorities should take place with regard to zoning laws, or regulations pertaining to such matters as water supply, storage of fuels, and sanitation.

Shelters should also coordinate with governmental and other agencies in developing and testing procedures for operation in emergencies. This includes plans for emergency communications between shelters and control center(s), for emergency location of shelterees should a shelter become uninhabitable, and for replenishment of supplies when temporary exit from the shelter becomes possible. All these questions should be covered in the emergency operation plan for the local community.

## **MAINTAINING OPERATIONAL READINESS**

Once the shelter has been brought to a desired level of preparedness, it will be necessary to periodically review all elements of the shelter system to ensure that the operational readiness of the shelter is maintained. This includes carrying out the following steps.

### **Check and Evaluate Equipment and Supplies**

Equipment and supplies should be checked at regular intervals to assure that they have not been damaged or misappropriated. Radiological instruments should be checked for operability, and the batteries tested as well.

Many of the supplementary supplies that have been locally provided will have a long self-life. Others, such as standard canned food, will have to be rotated periodically.

Shelter power, ventilation, and communication equipment should be periodically checked and test run, and the fuel supply should be monitored regularly.

### **Determine New or Modified Shelter Requirements**

There are a number of possible occurrences that call for a re-evaluation of the shelter system. These include:

1. Changes in the structure of the building.
2. Changes in the occupancy and use of the building.
3. New or revised municipal regulations.
4. The availability of new types of equipment.
5. New or modified guidance from OCD.
6. Changes in shelter staff personnel.

### **Test Procedures and Train Personnel**

If changes have been made in the shelter system, these should be reflected in the shelter management and operations plan, and in all other guidance materials applicable to the specific shelter.

Even if modifications to the shelter have not taken place, management and operational procedures should be periodically tested, preferably by operational exercises (actually filling the shelter and simulating in-shelter operations).

### **Communicate Shelter System Information**

All members of the shelter staff should be kept informed of changes in the shelter system, especially changes that pertain to someone's specific job assignment. If at all possible, the likely occupants of the shelter should be kept informed of major changes in the shelter system.

### **Coordinate with Other Agencies**

Participation in local alerts or other disaster exercises constitutes a valuable aid in maintaining operational readiness of a shelter.

## **CHAPTER 20. POST-OCCUPANCY MANAGEMENT RESPONSIBILITIES**

### **THE IMPORTANCE OF POST-OCCUPANCY LEADERSHIP**

It is very difficult to describe in any detail what the tasks of the manager might be after the shelter has opened for permanent emergence. It is somewhat easier to specify management responsibilities during the period of temporary emergence, for at this stage the shelter still represents a transient home for most of its occupants.

Regardless of the vagueness with which one must describe the shelter manager's post-attack responsibilities, one thing is clear. The cadre of shelter managers constitutes a powerful leadership force in the recovery and reconstruction efforts of any community. If the occupants of a shelter emerge safe, well, and with a motivation to rebuild, it will in no small measure be due to the efforts of the shelter manager. Therefore, it is only natural that this leadership source be utilized within a community until a more regular governmental apparatus has been established.

### **MANAGEMENT RESPONSIBILITIES IN THE TEMPORARY EMERGENCE PHASE**

At this point, radiation levels permit egress from the shelter for short periods of time. Volunteer task teams may leave the shelter in order to accomplish tasks necessary to support continued shelter habitability. Notification of the relative safety of exit should be obtained before anyone is permitted to leave the shelter. If possible, radiological monitoring instruments should be taken on missions.

#### **Reduce "Stored-Up" Shelter Problems**

It may be possible to take advantage of the temporary emergence phase to reduce some of the stored-up problems, such as the removal of waste and garbage, burial of the dead, relocation of the sick and injured to available hospitals, and transfer of problem shelterees to appropriate agencies.

### **Replenish Shelter Supplies**

Among the supplies that will be most needed are:

1. Water. The greatest emphasis is on replenishing the water supply. If uncontaminated or unpolluted drinking water is not available at this time, various packaged drinks and liquid-packed food will satisfy individual water needs and should be stocked in abundance.

2. Medical supplies. Very many shelters will be in need of medical supplies after an extended stay in-shelter. Among the supplies having a high priority are bandages, antiseptics, and non-prescription medicines (such as aspirins). Drugs requiring special handling should be brought into the shelter only if there are trained medical personnel available.

3. Sanitation supplies. Toilet paper, paper towels, sanitary napkins, disinfectants, hand cleaners, plastic bags of all sizes, garbage cans or other containers which can be sealed, and any other items deemed necessary should be stocked.

4. Food. Although food is not essential for physical survival over the short run, foods that can be brought in to vary the survival ration may have a potent, positive effect on morale.

5. Equipment. Certain types of equipment that have been used up, or are not operating, should be replenished. This includes fire-suppression equipment, communications equipment, illumination equipment, and power supplies (batteries, small motors).

### **Contact Local Officials**

If little or no communication has been possible during the in-shelter phase, an initial objective of the temporary emergence phase will be to establish contact with the local government officials. Information concerning the state of the Nation, radiation and damage in nearby areas, projected time for safe general exit, and any further instructions should be gathered and passed on to the shelterees. In turn,

local officials should be informed of the status of the shelter and its occupants.

#### **Persuade Shelterees to Remain**

After an extended stay under confined conditions, there may be those who feel it necessary to leave the shelter to see their homes, attempt to find relatives, and simply escape. The manager should attempt to dissuade shelterees from leaving the shelter and make them fully aware that the external radiation levels are still dangerous.

#### **Location of Family Members**

In addition to the tasks mentioned above, there still remains the location of the shelteree family members who may have taken shelter elsewhere. The knowledge of the whereabouts and welfare of separated family members would be of considerable value to the morale of individual shelterees. Efforts should be made, in communicating with control center(s) or with other shelters in the area, to exchange information concerning missing persons.

#### **Damage Assessment**

The task teams may also bring information concerning the extent of damage in the immediate area. This information, in conjunction with similar information from other shelter areas, can aid the local government in community damage assessment and the planning of recovery efforts. Such data should include differentials in radiation levels at various locations, should they exist.

#### **Supply of Manpower Data**

Finally, the shelter manager should supply all available manpower data to the local government for use in implementing the recovery plan. Information on types of skills possessed by shelterees, both men and women, would greatly assist authorities in obtaining the skills necessary for the various recovery operations.



## **MANAGEMENT RESPONSIBILITIES DURING THE FULL EMERGENCE PHASE**

Full emergence will occur when radiation conditions are such that shelterees may leave for the entire day and return to the shelter, as necessary, for meals and sleeping. In this period, the shelter becomes a base of operations for the implementation of recovery and reconstruction plans. Although local authorities will assume the responsibilities for maintenance of law and order, mass feeding and lodging, and general restoration of the community, the manager and staff may be asked to continue as administrators and managers in these efforts.

### **Reorganization and Restocking the Shelter**

If damage to dwellings is heavy, or if other reasons for not returning to homes prevail, the shelter may be used to house portions of the population during the recovery phase. This would require reorganization by the shelter staff in terms of augmenting the shelter supplies and facilities, including:

1. Water, bedding, food, and sanitation. Water may still have to be stocked, bunking facilities and materials would be augmented or supplied, substantial and varied foods would replace the survival rations, and additional or more adequate sanitation procedures would be introduced.
2. Additional space. It should be possible to obtain additional safe space, since the fallout hazard is no longer prominent. Such space would permit more comfort and privacy among shelterees and would minimize the risks to health.
3. Reorganization of shelter activities and task teams. Various task teams could be dissolved; others may be augmented. If recovery operations are in progress around the clock, feeding and sleeping schedules must be worked out to accommodate the various working shifts. Children's activity schedules, including resumption of schooling, may be developed and implemented.

### **Communication**

Governmental authorities may desire to use the established shelter organization as a means for rapid and accurate dissemination of information, both local and National. Because they have already been accepted as authorities, shelter staffs will be a valuable means of communication between the local government and the people.

### **Depopulation of Shelter**

In the full emergence phase, more and more people will leave the shelter, especially as the radiation level becomes negligible. This will require continuous activity by the shelter administrators to adjust supply requests, fill openings in the shelter organization, and maintain accurate records of those still present and those having permanently left the shelter.

### **Dismissal of Staff Members**

The relocation of the shelter population as reconstruction proceeds will probably permit the shelter manager to consider dismissing many of the shelter staff so that they may assume other responsibilities.

### **Return to Pre-War Use of Building**

It is possible that the building which houses the shelter will be returned to its pre-attack functions, even though the shelter area continues to function. A shelter in a telephone-company building may be such a case. Such a situation requires coordination among building owner, the shelter manager (if other than a representative of the owner), and the local authorities.

### **Closing the Shelter**

With the progressive success of recovery activities, and with the diminution of radiation to a safe level, there remains a large area of administrative responsibility for the shelter manager before his job is finished. When so notified by local officials, the manager must begin the process of closing the shelter. The following items must be dealt with.

1. Shelterees. There may still be individuals who have no place to go when the shelter is closed. Local

authorities must be supplied with their names and other relevant information so that they may aid in the process of relocation and rehabilitation of these people.

2. Supplies. The problem of remaining shelter supplies may be considered. The local recovery plans may make provision for the disposition of supplies through local authorities.

3. Clean-up. An important task is the final clean-up of the shelter before it is officially closed. Cleaning crews may be organized to remove all garbage and other waste, and to wash down and disinfect the entire shelter area.

4. Records. Finally, all shelter records should be turned over to the local government.

# REGISTRATION FORM

Shelter: \_\_\_\_\_  
Registration Number: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Age: \_\_\_\_\_ Sex: \_\_\_\_\_ Social Security No.: \_\_\_\_\_

Occupation: \_\_\_\_\_

Military Service Dates: \_\_\_\_\_ Rank: \_\_\_\_\_ Military Job: \_\_\_\_\_

Civil Defense Training Yes \_\_\_\_\_ No \_\_\_\_\_ Which Ring? \_\_\_\_\_

Check the following activities in which you are skilled. Also circle any activities that are part of your normal occupation.

Administrator/Supervisor _____	Engineering _____	Police/Security _____
Air Conditioning and Ventilation Repair _____	Equipment Maintenance and Repair _____	Psychiatry/Psychology _____
Appliance Repair _____	Fire Fighting _____	Radio Operating _____
Building Custodian _____	First Aid Training _____	Radiological Training _____
Carpentry _____	Food Preparation _____	Safety Engineering _____
Child Care _____	Medicine _____	Science _____
Clergy _____	Military Police _____	Science Teaching _____
Construction _____	Nursing _____	Secretarial _____
Counseling (Youth, Vocational) _____	Office Management _____	Social Work _____
Dentistry _____	Pharmacy _____	Store Managing _____
Electrical Repair _____	Plant Maintenance _____	Supply or Parts Distribution _____
Electronic Technician _____	Plant Safety _____	Teaching _____
Warehouse Management _____	Plumbing _____	Veterinary Medicine _____
Other: _____	X-Ray Technician _____	

Education: (Circle last year of school completed)

Grade School: 1 2 3 4 5 6 7 8 High School: 1 2 3 4 College: 1 2 3 4

Other: (Specify) \_\_\_\_\_

Medical Problems requiring immediate or special attention: \_\_\_\_\_

Initial Assignment: \_\_\_\_\_ Permanent Assignment: \_\_\_\_\_

Other Members of Immediate Family:

Name	Relation	Age	Check if with you	Elsewhere—indicate where if known

Religious Preference: \_\_\_\_\_

List Hobbies, Talents, Skills not already mentioned: \_\_\_\_\_

DO NOT WRITE BELOW THIS LINE

Group Assignment: \_\_\_\_\_ Task Assignments: \_\_\_\_\_

Personal Property \_\_\_\_\_ Items \_\_\_\_\_ Items \_\_\_\_\_

In-Shelter Medical Problems: \_\_\_\_\_

Other: \_\_\_\_\_

# SHELTER LOG

SHELTER \_\_\_\_\_

NO.	DATE/TIME	TYPE OF EVENT	DESCRIPTION OF EVENT	REG. FORM

COMMUNICATIONS LOG (INCOMING)

NO.	DATE/TIME	TYPE	SENDER	RECIPIENT	CONTENT	INIT.

COMMUNICATIONS LOG (OUTGOING)

NO.	DATE/TIME	TYPE	SENDER	RECIPIENT	CONTENT	INIT.

## SMELTER

[illegible]

### RADIATION EXPOSURE RECORD

Date(s) of Exposure(s)	Daily Dose(s)	Total Dose to Date
6/6/62	15	15
6/7/62	5	20
'62	25	45
6/8-6/10/62	5	50
DATE		

[illegible]

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# SUPPLY STATUS SUMMARY (OCD STOCKS)

SHELTER

PRE-OCCUPANCY INVENTORY	DATE OF INVENTORY:	INITIAL IN-SHELTER INVENTORY		AVAILABLE AS OF:										REMARKS	
		DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME		
<u>BISCUITS</u>															
Cases, 2.5 gal.															
cans per case															
Cases, 5 gal.															
cans per case															
<u>WATER</u>															
Drums, 17.5 gal.															
Cartons, poly-															
ethylene liners															
20 each															
<u>SANITATION KITS</u>															
Kits, Model III															
25 persons															
Kits, Model IV															
50 persons															
Drums, fiber															
(1 drum per kit)															
<u>CONTENTS OF KITS</u>															
Toilet tissue															
rolls															
Can openers															
Sanitary napkins,															
heavy duty, doz.															

# SAMPLE DAILY SCHEDULE FOR SINGLE-SHIFT SHELTERS

0700	Reveille
0730	Receive breakfast rations
0800	Eat breakfast
0830	Clean-up
0900	Sick call
0930	Training session or group meeting or continuation of sick call or recreation
1000	Water and biscuit break
1030	Training session for adults and older children /Ongoing education
1100	Training session for adults and older children/ for young children
1130	Free time for quiet activities/Maps
1200	Receive lunch rations
1230	Eat lunch
1300	Clean-up
1330	Information and training session / Recreation or education
1400	Information and training session/ for children
1430	Emergency drills
1500	Water and biscuit break
1530	Recreational activities
1600	Recreational activities
1630	Free time for quiet activities/Maps
1700	Receive dinner rations
1730	Eat dinner
1800	Clean-up
1830	Daily briefing
1900	Training session
1930	Planned recreational activities
2000	Planned recreational activities
2030	Free time for quiet activities
2100	Free time for quiet activities
2130	Water and biscuit break
2200	Free time for quiet activities
2230	Prepare for sleep
2300	Lights out

# SAMPLE DAILY SCHEDULE FOR TWO-SHIFT SHELTERS

SHIFT A	TIME	SHIFT B
Reveille	0700	Recreation
Receive breakfast rations	0730	Recreation
Eat breakfast	0800	Free time for quiet activities
Clean-up	0830	Prepare for sleep
Sick call	0900	Sleep
Group meeting/sick call	0930	
Water break; opt. biscuit break	1000	
Training session	1030	
Training session	1100	
Free time for quiet activities	1130	
Receive lunch rations	1200	
Eat lunch	1230	
Clean-up	1300	
Training session	1330	
Training session	1400	
Water break; opt. biscuit break	1430	
Quiet recreation	1500	
Quiet recreation	1530	
Free time	1600	
Receive dinner ration	1630	
Eat dinner	1700	Reveille
Clean-up	1730	Receive breakfast rations
Free time	1800	Eat breakfast
Recreation	1830	Clean-up
Recreation	1900	Sick call
Shelter briefing	1930	Shelter briefing
Training session	2000	Training session
Emergency drills	2030	Emergency drills
Water break; opt. biscuit break	2100	Water break; opt. biscuit break
Free time for quiet activities	2130	Free time for quiet activities
Free time for quiet activities	2200	Receive lunch rations
Prepare for sleep	2230	Eat lunch
Sleep	2300	Clean-up
	2330	Training session
	2400	Training session
	0030	Water break; opt. biscuit break
	0100	Quiet recreation
	0130	Quiet recreation
	0200	Free time for quiet activities
	0230	Receive dinner rations
	0300	Eat dinner
	0330	Clean-up
	0400	Training session
	0430	Training session
	0500	Free time for quiet activities
	0530	Free time for quiet activities
	0600	Group meeting
	0630	Water break; opt. biscuit break

## CHAPTER 1. OVERVIEW OF SHELTER MANAGEMENT

### Short-Answer Questions

1. The mission of the shelter manager can be defined as \_\_\_\_\_ and \_\_\_\_\_ of the largest possible number of shelterees.
2. Three important principles of shelter leadership are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
3. Effective shelter leadership results from a combination of elements of both \_\_\_\_\_ and \_\_\_\_\_ leadership.
4. Areas of a building, other than those marked as shelter spaces, may provide \_\_\_\_\_ protection against fallout.
5. The nature and duration of shelter phases will tend to be \_\_\_\_\_ for all types of shelters.

### Discussion Questions

1. What effects, if any, would the size of a shelter tend to have on the role of the manager? How might the manager's job be different in a 2,000-person shelter as opposed to a 200-person shelter.
2. The trained shelter manager has been unavoidably delayed in reaching the shelter to which he has been assigned. When he arrives, he discovers that several people have "taken over" as emergent leaders. They seem to be well accepted by the shelter population, but they are not doing an adequate job in organizing the shelter. How should the trained manager handle this situation?
3. What are the ideal characteristics of a shelter manager in terms of background, skills and experiences, and personal qualities?
4. One of the crucial management responsibilities in the initial period of a shelter stay is assumption of command of the shelter. How might the manager

assume command of a high-rise shelter or one with many physically separated spaces?

5. Of what practical significance to shelter management is the concept of "shelter phases"?

## CHAPTER 2. ORGANIZING THE SHELTER POPULATION

### Short-Answer Questions

1. A general management principle for the formation of task teams is to provide a shelter job for\_\_\_\_\_.
2. Two purposes for a shelteree identification system are\_\_\_\_\_and\_\_\_\_\_.
3. In shelters that have not stocked special forms, shelteree registration may be accomplished by\_\_\_\_\_.
4. The core management staff should always be kept \_\_\_\_\_ in number.
5. In general, the division level of community grouping becomes necessary in shelters with more than \_\_\_\_\_ persons.
6. Two task teams that do not have to be organized at the outset of the shelter stay are the\_\_\_\_\_ team and the\_\_\_\_\_ team.

### Discussion Questions

1. As the manager of a small shelter, how would you organize the population into community (living) groups? How many groups would you establish, with how many shelterees in each? In what order would you set up groups? How would you assign the population to living groups and how would you select community group leaders?
2. Discuss question number 1, as the manager of a large shelter.

3. What are the major factors that determine how many and what types of task teams should be established in any public shelter? Which teams, if any, are essential in all shelters?
4. What is the proper role of the advisory committee in shelter affairs? Can an advisory committee function in a multi-story, high-rise shelter? How should this committee be selected, and how many people should be chosen in the large shelter?
5. Discuss the pros and cons of a shelter organizational structure that combines the task teams and community groups. This means that all people who are assigned to the same task team are thereby members of the same living units.

### CHAPTER 3. ORGANIZING SHELTER RESOURCES

#### Short-Answer Questions

1. Personal property brought into the shelter should be \_\_\_\_\_ by management for the common good.
2. Three important written records that should be maintained in all shelters are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
3. Three items that might be brought into the shelter as personal property of individuals and might also be useful in the operation of the shelter are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
4. The \_\_\_\_\_ supply management approach would be most effective in a high-rise shelter occupying many floors.
5. Multi-purpose use of shelter supplies refers to the utilization of items for \_\_\_\_\_.

#### Discussion Questions

1. Under what set of shelter conditions is the establishment of a separate supply team necessary, and under what conditions are other arrangements adequate

to control shelter supplies? What organizational arrangements can be substituted for a supply team?

2. Isn't the keeping of shelter records merely a reflection of our normal over-organization and over-involvement with paperwork? Of what possible use could a shelter log and similar records be in a real emergency?

3. Why does management guidance emphasize the equal apportionment of survival supplies to all shelterees? Shouldn't shelter rationing take into account the fact that the survival needs of different people may vary considerably? Shouldn't shelter rationing be based on need and desire rather than on automatically equal apportionment?

4. It will take quite a long time until registration forms can be filled out and the results known to the manager, especially in a large shelter. What information about shelterees would the manager want to discover as soon as possible, and how might this be done without engaging in the time-consuming activity of filling out registration forms?

5. There are several basic approaches to the general problem of rationing supplies in a shelter. One approach is to start out initially with the lowest possible ration and increase it in the future as conditions permit. A second approach is to initially distribute relatively large supply portions, and cut down later as needed. Finally, one can try to maintain as even a ration as possible for the duration of the shelter stay. Discuss the merits and disadvantages of these approaches.

6. What general decisions would you be faced with as the manager of a high-rise shelter in which most of the survival rations are located in the basement? What supply procedures would you adopt to implement your general decisions?

## **CHAPTER 4. ORGANIZING ACTIVITIES & PATTERNS OF LIVING**

### **Short-Answer Questions**

1. An example of \_\_\_\_\_ management guidance is to establish a formal rule for every aspect of shelteree behavior.
2. The administration of corrective action is the responsibility of \_\_\_\_\_.
3. Two important purposes of a shelter schedule are (1) to provide \_\_\_\_\_ for the manager and (2) to provide \_\_\_\_\_ for the shelterees.
4. Two factors to consider in setting up a two-shift schedule in a shelter are \_\_\_\_\_ and \_\_\_\_\_.
5. In a shelter setting, a serious social-control problem can be defined as \_\_\_\_\_.

### **Discussion Questions**

1. What is the value of a shelter schedule? In developing a shelter schedule, what activities and operations should be planned for the first six hours? For the first 24 hours?
2. Which, if any, shelter rules should be left to the discretion of the shelter population? What factors does the manager have to take into account in determining which rules shelterees can make for themselves? How might the passage of time in-shelter affect shelteree attitudes towards shelter rules?
3. Discuss the advantages and disadvantages of each of the following approaches to the development of shelter rules.
  - a. Establish an elaborate set of shelter rules covering all contingencies, including corrective actions to be invoked in case of violation. See that shelterees are informed about rules.
  - b. Establish a very general set of categories of rules. See that shelterees are briefed on the categories. Except for the most essential



regulations, do not make up a detailed set of rules in advance of any social-control situation. Determine the appropriate corrective action at the time of any incident.

4. In peacetime, the innocence or guilt of persons who have been accused of breaking the law is very often determined by a jury of their peers. Therefore, in a shelter, the determination of innocence or guilt and the selection of the appropriate corrective action should also be left to a jury of shelterees. Discuss the appropriateness of this procedure.

5. It is now four days after time of shelter entry. A small group of about a dozen male adults, who have resisted you and your staff throughout the shelter stay, have now completely defied your authority. They are molesting women, taking rations at will, and generally terrorizing the surrounding group. They say they will burn the shelter down if they are expelled. At least one of them may be armed with a knife. What are your decisions and actions? What factors must you take into account in arriving at a decision?

## CHAPTER 5. RADIOLOGICAL PROTECTION

### Short Answer Questions

1. In the absence of accurate radiological monitoring equipment, the manager should base his planning estimates upon a shelter stay of\_\_\_\_\_.
2. Almost 100 per cent of the exposed people will die within two to four weeks if their short-term, whole-body exposure to fallout radiation exceeds\_\_\_\_\_ Roentgens.
3. The\_\_\_\_\_ any material is, the greater the shielding it provides against gamma radiation.
4. The "protection factor" of a shelter represents \_\_\_\_\_ of the protective capability.

5. Two basic types of protection against radiation are \_\_\_\_\_ and \_\_\_\_\_.
6. The instrument that measures the rate of radiation is called a \_\_\_\_\_.
7. Fallout looks like \_\_\_\_\_.
8. \_\_\_\_\_ and \_\_\_\_\_ are two common symptoms of radiation sickness.

#### Discussion Questions

1. Describe the major protective actions against radiation that can be put into effect inside the shelter prior to the arrival of fallout. When should these actions be implemented? What, if any, are the steps that can be taken outside the shelter to increase radiation protection; for what types of shelters might such actions be useful?
2. The shelter which you are managing has one small area that offers very high protection against radiation (with a protection factor of over 500). However, most of the other shelter spaces fall into the 40-100 P.F. categories. The shelterees have not yet been made aware of the differences in protection at present; only you and the radiological team know of this situation. The external fallout levels give indications of becoming quite high. What, if anything, would you do with the high-protection area?
3. There are no trained RADEF personnel in your shelter and you must give the initial radiological briefing to a relatively unsophisticated shelter population. What are the major points about radiation and protective actions that you would want to be sure are understood by everyone in the shelter?
4. In the middle of the first night, 20 or so people present themselves at a shelter entrance seeking admittance. The radiological team head reports to you that these people have been exposed to a dosage of over 500 Roentgens within a relatively brief period. What are your decisions and actions?

5. An emergency situation has arisen that requires a team of people to leave the shelter temporarily, when the external radiation level stands at approximately 20 Roentgens per hour. On what basis would you select members of the emergency team, and whom would you be most likely to use? What special instructions might you provide the emergency team before it begins its mission?

## CHAPTER 6. OTHER WEAPON EFFECTS

### Short-Answer Questions

1. Within a fallout shelter, \_\_\_\_\_ should not be erected for protection against blast, because of the possible hazard to shelterees.
2. A \_\_\_\_\_ may be defined as a mass fire originating from many smaller but simultaneous fires.
3. Thermal radiation is reflected by fabrics or materials that are \_\_\_\_\_ in color.

### Discussion Questions

1. What, if any, are the procedures that can be implemented in a fallout shelter that may slightly increase that shelter's protection against blast effects? Under what conditions should such procedures be attempted, if at all?

## CHAPTER 7. SAFETY

### Short Answer Questions

1. Three ways in which fire can affect a shelter, its equipment, and inhabitants are: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
2. The most practical method of fire detection in most shelters is through the use of a \_\_\_\_\_.

3. Three basic methods for putting out fires are:  
\_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

#### Discussion Questions

1. What are the basic rules related to fire prevention that all shelterees should be made to understand?
2. How would you organize the activity of "fire watch" in a shelter? Who, what, when, where, how many people, for how long a time should be involved in the fire watch?
3. Discuss the factors that you must take into consideration in assessing any structural damage that your shelter might have received.

### CHAPTER 8. ATMOSPHERE AND TEMPERATURE CONTROL

#### Short Answer Questions

1. "Effective temperature" is a composite measure that takes into account not only the temperature in the shelter, but also \_\_\_\_\_ and \_\_\_\_\_.
2. Heat-producing activities that can be curtailed in-shelter to counteract high temperature include \_\_\_\_\_ and \_\_\_\_\_.
3. The major problem in maintaining a tolerable oxygen/carbon dioxide balance is to prevent the rapid rise in \_\_\_\_\_ level that will tend to occur before the \_\_\_\_\_ level has dropped significantly.
4. Carbon dioxide is a product of \_\_\_\_\_; three sources of carbon dioxide are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
5. If odors become a problem in-shelter, it will largely be a \_\_\_\_\_ problem rather than a physical problem.

### **Discussion Questions**

1. Discuss the procedures that you would implement in a naturally ventilated shelter, if the temperature has risen to a very uncomfortable level. What are the alternatives in the event that none of the suggested procedures serve to keep the temperature rise down?
2. It has often been demonstrated that, in a shelter, some people feel warm and others cold within what is supposed to be the temperature zone of optimum comfort. How would you handle the problem of widely divergent shelteree reactions to a given temperature level?
3. What special temperature and atmosphere control procedures would you set into operation in a shelter that is dependent upon fuel-burning machinery?
4. What special cautions, if any, should be exercised in a mechanically ventilated shelter equipped with filters?

## **CHAPTER 9. WATER**

### **Short-Answer Questions**

See questions for Chapter 10, Food, page 201.

### **Discussion Questions**

1. What steps can be taken after shelter entry to augment the water supplies in the OCD drums? When and how should these steps be undertaken?
2. What are the factors to consider in selecting a method for distribution of water in a shelter? Discuss some of the advantages and disadvantages of several different approaches to water distribution.
3. Do you agree or disagree with the following statements, and for what reasons? There is no way to maintain sanitary standards in a shelter. Therefore, efficiency and conservation should be the goals in distributing water and other supplies, instead of going

through the motions of maintaining sanitary standards. This means that, if necessary, someone should suck on the water hose to start the suction, or distribute water by dipping his cup into the drum and filling other cups from his. These methods are all right as long as the person performing them does not have any communicable disease.

4. What are the factors you would take into consideration before you would permit the use of potable water for any purpose other than drinking?

5. How does the human need for water fit into the total picture of shelter activities and operations? What would be the general effect upon shelter operations of a shortage of water? In turn, how do other operations, activities, situations affect the amount of water required for survival?

## CHAPTER 10. FOOD

### Short Answer Questions

1. The Office of Civil Defense is currently stocking survival rations to provide \_\_\_\_\_ calories per person for a shelter stay of \_\_\_\_\_ duration.
2. The three types of cereal rations currently being stocked are the \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
3. Generally speaking, there should be \_\_\_\_\_ servings of survival rations provided for shelterees daily.
4. A large proportion of shelterees would not be able to survive under conditions of total water deprivation lasting longer than \_\_\_\_\_.
5. Office of Civil Defense water drums are being stocked to provide \_\_\_\_\_ of water per person based on an estimate of a \_\_\_\_\_ shelter stay.
6. The ideal food for infants is \_\_\_\_\_.
7. When empty, the steel water drum should be used as a (an) \_\_\_\_\_.

### Discussion Questions

1. Normal, healthy persons can survive two weeks without any food. Why then has so much money been invested in survival food supplies for community shelters, and why should there be any concern about the palatability of the survival rations?
2. The carbohydrate supplement is being stocked in shelters to add variety to the survival diet. Discuss the different ways in which the supplement can be used as part of the shelter ration. What are some of the varied methods for distributing the carbohydrate supplement, and what are the advantages and disadvantages of each method?
3. What effect does the size and configuration of the shelter have upon the total food operation? Discuss how food storage and control, rationing, preparation, distribution, consumption might be different in the large, high-rise shelter as compared to the small, single-space shelter.
4. What factors should be taken into account in setting up a feeding schedule? How would size of shelter affect the schedule?

## CHAPTER 11. SLEEP

### Short Answer Questions

1. The shelter sleeping area should be set up near the \_\_\_\_\_ area, and should have low levels of \_\_\_\_\_ and \_\_\_\_\_.
2. Perhaps the major factor that determines the type of sleeping arrangements in a shelter is the \_\_\_\_\_.
3. In assigning shelterees to sleeping positions, a \_\_\_\_\_ arrangement is frequently recommended for health purposes.
4. On-the-floor sleeping can be made more comfortable by \_\_\_\_\_.

5. Shelterees should be separated on the basis of \_\_\_\_\_ and \_\_\_\_\_ in assigning them to sleeping locations.

#### Discussion Questions

1. What decision alternatives are available to the shelter manager in the event that there are only enough bunks for half the shelter population to sleep on at one time, assuming there is enough floor space for the rest of the population to sleep on? Under what conditions might each alternative be the best possible choice?
2. Realistically speaking, can anything be done about persons who unwittingly, but regularly, keep others awake at night with cries, moans, or snores? How important is it to try to maintain quiet during "lights out"?
3. In a shelter inhabited by people of widely varying ages and states of health, it may be very difficult to get everyone to agree to a common time for "lights out." How might the manager deal with a situation such as this?
4. If members of the night watch are selected from among the shelter population, they may often not be willing to report incidents involving fellow shelterees to the manager. How can the night watch be made into a truly functioning arm of shelter management?
5. It has been demonstrated that many shelterees are more comfortable sleeping head-to-head, although a head-to-toe arrangement is frequently recommended as a sleeping position for health reasons. Should each individual be allowed to make his own decision? If so, are there any other aspects of the sleeping problem that should be left to the will of the people? If this is not a decision for individuals to make, how should it be handled?



## CHAPTER 12. SANITATION

### Short Answer Questions

1. Maintaining the highest possible sanitary standards is a shelter requirement because of the close connection between sanitation and\_\_\_\_\_.
2. If normal flush toilets are operable in a shelter, they may be used, depending upon the availability of\_\_\_\_\_.
3. Besides the fiberboard sanitation drums, the \_\_\_\_\_are to be used as toilets.
4. Many items that would normally be disposed of as trash can be put to good use in shelter sanitation procedures. Two of these items are \_\_\_\_\_ and \_\_\_\_\_.
5. The hand cleaner provided in some of the sanitation kits is primarily for use by\_\_\_\_\_.

### Discussion Questions

1. Why is the maintenance of high sanitary standards given such emphasis in shelter management guidance, even though realistically such high standards may be very difficult to achieve in a group shelter?
2. It is possible that people might resent being assigned to a sanitation team, especially the toilet team. They may even refuse to accept an assignment to this team. How can the manager overcome this problem and recruit a sanitation team that will perform its tasks efficiently, without becoming a potential source of disturbance?
3. What are the most reasonable ways to deal with the diaper problem in a shelter with a large number of infants and toddlers? What are the advantages and disadvantages of each method?
4. Discuss the factors that must be taken into account in establishing a toilet area using OCD sanitation kits.

5. What are some of the potential problems associated with getting shelterees used to strange, new toilet practices, in view of the strength of normal habits?

6. What are some potential sanitation problems to anticipate in a shelter with an augmented food capability?

## CHAPTER 13. MEDICAL CARE

### Short-Answer Questions

1. Sound management guidance in relation to the distribution of medicine is reflected in the principle, "Give each patient only\_\_\_\_\_."
2. The supplies in the OCD medical kits are intended for the treatment of\_\_\_\_\_.
3. A basic part of the medical program in most shelters will consist of\_\_\_\_\_; that is, shelterees attending to each other's needs.
4. In determining whether a person is dead, the absence of a\_\_\_\_\_for\_\_\_\_\_minutes is a clear sign that death has occurred.

### Discussion Questions

1. The medical kits stocked by OCD provide a capability to perform first aid and to treat minor illnesses. Many shelters will contain people who entered the shelter with serious medical conditions unrelated to the effects of nuclear attack. What, if anything, can the shelter manager do to increase the survival chances of shelterees entering with serious medical problems?
2. Assuming a shortage of medical supplies, what criteria should the manager use in allocating the available supplies in a shelter with many patients of both sexes, all ages, and suffering from ailments varying widely in their severity?

3. What combination of shelter conditions would call for the establishment of a sick bay?

4. The dual-purpose use of supplies or equipment is a key principle of shelter management. What items likely to be commonly available can be made into improvised medical supplies and equipment?

5. What are the required actions on the part of the shelter manager in the event a death occurs in the shelter?

6. How should the manager staff a medical team in the absence of a licensed physician? If two or more physicians are present?

## **CHAPTER 14. ILLUMINATION AND POWER**

### **Short-Answer Questions**

1. The hazards in using an open flame for shelter illumination are \_\_\_\_\_ and \_\_\_\_\_.
2. The shelter activity that will probably require the highest levels of lighting is \_\_\_\_\_.
3. \_\_\_\_\_ lights produce less heat than \_\_\_\_\_ lights, but the latter are more reliable, especially under conditions of irregular voltage.
4. Two important management considerations in the use of motor-driven generators are \_\_\_\_\_ and \_\_\_\_\_.

### **Discussion Questions**

1. What special cautions must be exercised in using fuel-burning equipment in a shelter?
2. Assuming that there are only three or four small areas of the shelter that have adequate lighting, what shelter activities or operations should be conducted in these areas?

3. Assuming a single flashlight as the only source of light available, what procedures might the manager adopt to maximize the useful life of the flashlight?

4. Can a small shelter be operated in almost total darkness (no lighting devices available)? Give reasons for your answer.

## CHAPTER 15. COMMUNICATION

### Short-Answer Questions

1. Information will be disseminated to the public through the\_\_\_\_\_. This system requires that the listener tune to\_\_\_\_\_.
2. The communication area should be located in or near the\_\_\_\_\_ area.
3. A briefing to present news to the shelter population should be held at least\_\_\_\_\_ as a scheduled activity.
4. A shelter-wide group session should be conducted whenever\_\_\_\_\_.
5. Incoming communications messages should first be\_\_\_\_\_ by\_\_\_\_\_, and then disseminated to the shelterees.

### Discussion Questions

1. Why is it so important to provide the shelter population with information on a regular basis, even though there may be little news to report?
2. In the absence of a telephone or public address system, it may be very difficult for a shelter manager to communicate with the population in a large, high-rise shelter. Under these circumstances, what are some possible procedures that can be adopted to exchange information between physically separated areas of the shelter?

3. Under what conditions can a group session in which the shelterees collectively air their feelings be a valuable contribution to shelter adjustment? Under what conditions does it have the potential for becoming a disturbing influence in the shelter?

4. Why must communication between a shelter and the emergency seat of local government be strictly regulated?

5. What procedures should be established for monitoring incoming broadcasts of the Emergency Broadcast System and other communication channels? Should incoming messages automatically be broadcast throughout the entire shelter? Why (why not)?

## CHAPTER 16. TRAINING

### Short-Answer Questions

1. Some commonly available items that can be improvised for use as training supplies are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
2. A principle of in-shelter training is to maintain a \_\_\_\_\_ pace, and to continually review \_\_\_\_\_ of the material.
3. A major purpose for maintaining limited "school" activities for school-age children is to \_\_\_\_\_.

### Discussion Questions

1. Should a training program be considered as a required activity in a shelter, or should it be regarded as more or less an optional feature of a shelter stay? Give reasons for your answer.
2. How should the shelter manager deal with the problem of people who refuse to participate in training sessions? What should be done if a large number of shelterees, perhaps even a majority, resist participating in training?

3. In the matter of developing a training program, what should be the responsibility of the training team, and what the responsibilities of other teams (such as radiological and medical) whose members have the technical information to convey?
4. What kind of training for post-shelter living can realistically be conducted during a shelter stay, in light of the uncertainties concerning the nature of the post-attack world?
5. What kinds of needs and problems are likely to be faced in carrying out training activities for children?

## **CHAPTER 17. PSYCHOLOGICAL SUPPORT**

### **Short-Answer Questions**

1. The Federally provided medical kit contains \_\_\_\_\_ which may prove useful in certain cases of psychological disturbance.
2. The basic technique for conducting psychological first aid is \_\_\_\_\_.
3. In considering psychological support for children in the shelter, it should be remembered that children, in general, take their behavior cues from \_\_\_\_\_.
4. Probably the most important general source of psychological support in-shelter is \_\_\_\_\_.

### **Discussion Questions**

1. What actions, if any, should be taken by shelter management, in the event that drug addicts are present in the shelter; in the event that alcoholics are present?
2. What set of shelter conditions would call for the establishment of a psychological first aid team?
3. Do you agree or disagree with the following statement, and for what reasons? "The purpose of a fall-

out shelter is to keep people alive physically. As far as mental well being is concerned, there will be ample time in the post-shelter recovery period to get people adjusted to living in a strange, new environment. To try to sustain emotional adjustment among the occupants of a shelter is an unreasonable goal, given human nature and the characteristics of shelter confinement."

4. After several days in the shelter, the deputy manager whom you appointed on the basis of his vast knowledge and experience starts to become very argumentative in his contacts with you. He tells others in the shelter that you are not doing your job properly. He begins to spend more and more of his time with a small group of people who apparently have been drawn together by their dissatisfaction with the way things are going in the shelter. How do you deal with this situation?

## **CHAPTER 18. RELIGIOUS, RECREATIONAL, SERVICE ACTIVITIES**

### **Short-Answer Questions**

1. Service activities in a shelter include caring for \_\_\_\_\_, the \_\_\_\_\_, and the \_\_\_\_\_.
2. Three types of recreational activities suitable for shelter environments are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
3. A major limitation to a physical fitness program in-shelter is due to the relationship between vigorous physical activity and \_\_\_\_\_.
4. Attendance at religious services should be \_\_\_\_\_. If formal religious leaders are not available to conduct denominational services, \_\_\_\_\_ services are the practical solution.

### **Discussion Questions**

1. Do you agree or disagree with the following statement? Give reasons for your answer. "Under conditions of actual attack, there will be no time for

planned social and recreational activities in a shelter, no matter how long the period of confinement lasts. For one thing, people will be in no mood to play games. In addition, there are many shelter activities much more important to survival than recreation that will keep people occupied the length of the shelter stay."

2. A large urban shelter will very likely have members of many religious faiths and denominations. How should the shelter manager establish a program of religious activities, upon request of the shelterees, that will accommodate the wishes of the diverse faiths and denominations, without alienating any group of shelterees, and without interfering with shelter operations?

3. Describe some techniques for improvising equipment for common games with materials that are likely to be available in many public shelters.

4. What, if anything, should the manager do about people who refuse to participate in any planned social and recreational activities and prefer to remain isolated and withdrawn?

## **CHAPTER 19. PRE-OCCUPANCY MANAGEMENT RESPONSIBILITIES**

### **Short-Answer Questions**

1. \_\_\_\_\_ means having the shelter in a state of preparedness so that it can be put in use at a moment's notice.
2. Supplies should be located in a shelter so that they \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
3. Three important features that should be included in a shelter operations plan are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
4. After shelter procedures have been developed, they should be periodically \_\_\_\_\_, preferably by \_\_\_\_\_.



### **Discussion Questions**

1. Assuming that a shelter manager had a budget of several hundred dollars to supplement the survival stocks provided by OCD, what additional items should be considered for augmenting the capability provided by the Federally stocked supplies?
2. In a large, high-rise office building, what procedures might the assigned shelter manager adopt to select and recruit a shelter management staff (shelter deputies, community group leaders, and team heads)?
3. Do you agree or disagree with the following statement? Give reasons for your answer. "The job of the shelter manager really begins at the time warning signals are heard. During peacetime, the task of establishing and maintaining operational readiness of a shelter is basically the responsibility of the building owner or the normal management organization, or perhaps someone assigned to the job of shelter planner. The shelter manager should not have to concern himself with changing batteries or rotating food supplies."
4. In a large, high-rise shelter in an office building occupied by many firms, what should be done in the event one or more companies refuse to participate in the shelter program? For instance, should the employees of the non-participating firms be considered as shelter occupants in the event of an attack? What tactics might be employed to get non-participating firms to contribute to the shelter program of their building?

## **CHAPTER 20. POST-OCCUPANCY MANAGEMENT RESPONSIBILITIES**

### **Short-Answer Questions**

1. Some of the stored-up problems that may be reduced during the temporary emergence phase are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

2. Even during the period of full emergence, many shelterees may still have to return to the shelter for \_\_\_\_\_ and \_\_\_\_\_.
3. The cadre of shelter managers will provide a source of \_\_\_\_\_ during the community's initial reconstruction efforts.

#### Discussion Questions

1. In the absence of an external communication capability, how, if at all, can the manager determine that it is safe and feasible for the confined population to leave the shelter permanently?
2. Discuss what some of the major problems of the immediate post-shelter situation are likely to be in an urban area of the country that has been subjected only to fallout and not to any blast or fire damage. Would these problems be the same for a rural area under the same conditions? If not, how would they be different?
3. What are some conceptions of the role of the shelter manager in the immediate post-shelter environment? Is it likely, or desirable, that he become a private citizen as soon as local government begins to resume active control of the community?

## **APPENDIX C**

**Additional Readings**

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**APPENDIX B**

**Over-All System Questions**

This review consists of a series of multiple-choice, short-answer questions organized as a scenario of shelter events that point up some of the problems that a shelter manager may reasonably be expected to face in a community shelter. The first part of the review is tailored for a small shelter, while the second part emphasizes the decisions that the manager of a large, high-rise shelter may have to make.

## SMALL SHELTER SCENARIO

### Description of the Shelter

The shelter to which you have been assigned as the manager is a small one. It has a capacity of 175 people. This means that the Office of Civil Defense has determined that there is sufficient space for 175 people and has therefore provided food, sanitation kits, medical kits, radiological equipment, and water drums for 175 persons.

The shelter is in the basement of a small junior high school located in a suburban area.

The shelter area consists of the small gymnasium room and a single room which is normally the gym teachers' office. The dimensions of the shelter are approximately 70 feet long by 30 feet wide.

There are two doors and several windows in the shelter area, but they do not directly open to the outside of the building; both the windows and doors open onto hall corridors.

All the survival supplies provided by the Office of Civil Defense are located in a large storeroom, just across the hall from the shelter.

\*\*\*\*\*

It is 4:15 on a Friday afternoon. It is late spring and the temperature is 82°. Very few students and teachers are in the building at the present time.

### Review Questions

1. The warning signal to take shelter sounds at 4:20 p.m. By the time you arrive it is 4:30, and a number of people are already in the shelter standing around the door.

Many people are still outside the shelter, milling about, waiting to get inside.

The first thing you do is to identify yourself as the manager assigned to this shelter.

The next thing you do is:

- \_\_\_\_\_ a. Personally count the number of people in the shelter, and divide them into groups.
- \_\_\_\_\_ b. Get a volunteer to count people in the shelter, and to direct them to move away from the door.
- \_\_\_\_\_ c. Go outside and tell the people there that they will all be let in shortly.
- \_\_\_\_\_ d. Direct people inside away from the entrance and let everybody outside come into the shelter immediately.

\*\*\*\*\*

2. It is now 4:45 p.m. Approximately 170 people are now in the shelter. About 70 people are outside waiting to get in. You know that there is another shelter located three short blocks away, although you are not sure whether it is filled to capacity or not.

What do you do next?

- \_\_\_\_\_ a. Close the shelter door and direct the people who are outside to go to the other shelter.
- \_\_\_\_\_ b. Let all the people outside come into the shelter.
- \_\_\_\_\_ c. Explain the situation to the people already in the shelter and let them vote on whether to let the others in.
- \_\_\_\_\_ d. Let the people who are outside come into another part of the building, but keep them out of the shelter area itself for the time being.

\*\*\*\*\*

3. It is now 4:40 p.m. The doors to the shelter have been closed. The men, women, and children in the shelter are either standing in small groups talking to each other or wandering aimlessly around the shelter. Many people appear to be in a dazed state.

As the manager, the thing you should do immediately is:

- \_\_\_\_\_ a. Appoint group leaders to take charge of the people.
- \_\_\_\_\_ b. Start to look for shelter supplies and inventory them.
- \_\_\_\_\_ c. Keep on talking to shelterees, reassuring them about the protection that the shelter offers.
- \_\_\_\_\_ d. Distribute registration forms to the people to get information about their skills and backgrounds.

\*\*\*\*\*

4. It is important to get vital shelter operations started as soon as possible. In order to do so, you will have to assign people in the shelter to do various jobs.

Which of the following represents the order in which you would assign the shelter jobs that have to be done immediately?

- \_\_\_\_\_ a. (1) Food and water (2) Sanitation  
(3) Radiological (4) Communication
- \_\_\_\_\_ b. (1) Communication (2) Food and water  
(3) Radiological (4) Safety
- \_\_\_\_\_ c. (1) Medical (2) Radiological  
(3) Food and water (4) Training
- \_\_\_\_\_ d. (1) Radiological (2) Safety  
(3) Sanitation (4) Food and water

\*\*\*\*\*

5. How would you select people to perform the tasks that have to be done immediately?

- \_\_\_\_\_ a. I would select friends or people that I know.
- \_\_\_\_\_ b. I would ask for volunteers, and then assign them to jobs.

\_\_\_\_\_c. I would announce the skills needed for each job, and get volunteers who have these or similar skills.

\_\_\_\_\_d. I would distribute registration forms to adults and find out what occupations and skills people in the shelter have.

\*\*\*\*\*

6. Assuming that you knew the occupations of the people in the shelter, whom would you select to be the head of each of the following teams?

a. For the head of the radiological team (RADEF team):

\_\_\_\_\_ (1) TV repairman.

\_\_\_\_\_ (2) High school science teacher.

\_\_\_\_\_ (3) Mechanical engineer.

\_\_\_\_\_ (4) Graduate student majoring in physics.

b. For the head of the food and water team:

\_\_\_\_\_ (1) Housewife.

\_\_\_\_\_ (2) Butcher.

\_\_\_\_\_ (3) School teacher.

\_\_\_\_\_ (4) Retail food store manager.

c. For the head of the safety team:

\_\_\_\_\_ (1) Policeman.

\_\_\_\_\_ (2) Building custodian.

\_\_\_\_\_ (3) Teacher.

\_\_\_\_\_ (4) Boy Scout leader.

\*\*\*\*\*

7. In addition to setting up teams to perform shelter tasks, you must also see to it that the shelter population is divided into living groups (also referred to as community groups or manageable units). At the present time there are 200 persons in the shelter.

What is the best organization of living units for this shelter?

- \_\_\_\_\_ a. Divide the population into two groups of 100 persons each; then further divide each group of 100 into five groups of 20 persons each.
- \_\_\_\_\_ b. Divide the population into 20 groups of ten persons each.
- \_\_\_\_\_ c. Divide the population into four groups of 50 persons each; then subdivide each group of 50 into five groups of ten persons each.
- \_\_\_\_\_ d. Divide the population into two groups of 100 persons each; subdivide each of these groups into two groups of 50 persons each; further subdivide each of the 50-person groups into five groups of ten persons each.

\*\*\*\*\*

8. a. How do you select leaders for the largest living group that you have established in the shelter?

- \_\_\_\_\_ (1) Appoint people you know.
- \_\_\_\_\_ (2) Ask for adult male volunteers.
- \_\_\_\_\_ (3) Appoint persons who have reported management experience on their registration forms.
- \_\_\_\_\_ (4) Let the members of the group select their own leaders.

b. How do you select leaders for the smallest living groups that you have established?

- \_\_\_\_\_ (1) Appoint people you know.
- \_\_\_\_\_ (2) Ask for adult male volunteers
- \_\_\_\_\_ (3) Appoint persons who have reported management experience on their registration forms.
- \_\_\_\_\_ (4) Let the members of the group select their own leaders.

\*\*\*\*\*

9. a. Which of the following represents the best way to assign people to the largest living group?



- \_\_\_\_\_ (1) Assign people on the basis of their location in the shelter, keeping groups of families and friends together.
- \_\_\_\_\_ (2) Assign people on the basis of the jobs they have been given to perform in-shelter; that is, keep all people with the same task team assignment in the same living unit.
- \_\_\_\_\_ (3) Let people organize into living groups by themselves; you just tell them how large the groups should be.
- \_\_\_\_\_ (4) On the basis of information in the registration form, you assign people whom you think will get along with each other.

b. Within each of the large living units, what is the best way to assign people to the smallest living group?

- \_\_\_\_\_ (1) Assign them on the basis of their location in the shelter.
- \_\_\_\_\_ (2) Let them form their own groups, after being told how big the groups should be.
- \_\_\_\_\_ (3) Assign them to groups on the basis of information they have indicated on the registration form.
- \_\_\_\_\_ (4) Let the leaders of the largest living groups decide which people they want in each of the smaller living groups for which they are responsible.

\*\*\*\*\*

10. It is now 5:45 p.m. A message from the Emergency Broadcast System is picked up on a portable radio that someone has brought into the shelter with him. The message says that radioactive fallout is expected in your area within 20 minutes. It is your responsibility to see to it that the protection against radiation in your shelter is as great as it can be.

Some of the possible actions you can take are:

- 1. Increase shielding around all shelter openings by stacking food and water cans against them.
- 2. Stack movable metal lockers against doors and windows.

3. Cover any places through which fallout might enter the shelter; for example, cover a broken window with cardboard.
4. Go outside and find concrete blocks, rocks, and other dense materials to build up shielding at windows and other openings.
5. Wait until fallout begins to descend, and see what kind of problem it really is.

Which of the following sets of immediate actions represents the most practical course you can follow in this shelter in regard to radiological protection?

- ☐ a. All of the steps listed above except 5.
- ☐ b. Only step 5.
- ☐ c. Steps 1, 2, 3.
- ☐ d. Step 5 first, then steps 1, 2, 3.
- ☐ e. Step 4 first, then if enough time steps 1 and 2.

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11. Your primary source of information about fallout radiation is the radiological team (RADEF team) using the radiological instruments stocked in the shelter.

When should the radiological team begin to monitor the shelter for the presence of fallout?

- ☐ a. As soon as the radiological team is selected and briefly instructed in the operation of the equipment.
- ☐ b. Immediately after a radio, phone, or other type of message indicating that fallout is approaching the area.
- ☐ c. After the radiological team has had a chance to thoroughly study the equipment and learn monitoring procedures thoroughly.
- ☐ d. After an observer reports that fallout is descending outside the shelter.

\*\*\*\*\*

12. It is now 6:00 p.m. Fallout has not yet begun to descend. An inventory of all the supplies stocked in the shelter has been made. The inventory reveals

that the only supplies actually in the shelter are those that have been stocked by the Office of Civil Defense. However, in the building, just outside the shelter area, there are items that would be useful to bring into the shelter. The items that are available in the building outside the shelter are:

1. Food from vending machines.
2. Fire extinguishers.
3. Flashlights.
4. Drinks from vending machines.
5. Blankets.
6. First aid kits.
7. Books and magazines.
8. Liquor.
9. An AM-FM radio.
10. Pencils and paper.
11. Hand tools (hammer, saw, etc.)
12. Mops, brooms, dustpans.

Which of the following groups of items contains the supplies you would most want to bring into the shelter?

- \_\_\_\_\_ a. Items 2, 3, 5, 9, 11.
- \_\_\_\_\_ b. Items 1, 3, 7, 9, 10.
- \_\_\_\_\_ c. Items 1, 4, 5, 6, 8.
- \_\_\_\_\_ d. Items 2, 3, 6, 10, 12.

\* \* \* \* \*

13. A teenage boy has brought a portable radio with him but does not want to contribute it for use by the manager to communicate with the outside world.

How do you handle this situation?

- \_\_\_\_\_ a. Have the security team confiscate the radio from its owner.
- \_\_\_\_\_ b. Have friends of the owner try to talk him into volunteering the radio.
- \_\_\_\_\_ c. Let the owner become a member of the communication team, with the job of listening for emergency messages.
- \_\_\_\_\_ d. Let the shelter group vote on what to do about the situation.

- \_\_\_\_\_e. Let the owner retain his radio, while you try to find other ways of communicating with the outside.

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14. The head of the supply team reports to you that all supplies have been inventoried. He wants to know where he should put the supplies and how he should distribute them.

What is the best way of arranging the supplies in your shelter?

- \_\_\_\_\_a. Have all the supplies located in one central area in the shelter; have the head of each team pick up the supplies he needs from the central storage daily, and distribute them to the people.
- \_\_\_\_\_b. Let each living group keep a stock of all the supplies that it will need.
- \_\_\_\_\_c. Have all the supplies located in a central area and let each person in the shelter get his supplies directly from the storage area.
- \_\_\_\_\_d. Set up four storage areas, one in each corner of the shelter, and let the living groups nearest each storage area pick up its supplies from that point.

\*\*\*\*\*

15. The head of the food and water team wants to know how much food and water should be given to each person daily.

The best plan for rationing food and water in your shelter is:

- \_\_\_\_\_a. Give everybody 2,000 calories and two quarts of water per day for the first couple of days. Cut down on the ration if radiation levels suggest that a long shelter stay will be necessary.
- \_\_\_\_\_b. Let the group vote on the amount of food and water it should get every day.
- \_\_\_\_\_c. Give adult and teenage males 1,500 calories per day, women and children 750 calories per day, and everyone one and a

half quarts of water per day, until it is possible to figure out how long you will have to remain in the shelter.

- \_\_\_\_d. Give everyone about 700 calories and one quart of water per day, estimating a two week period in the shelter. Increase the ration if it appears likely that a shorter shelter stay is possible.

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16. The head of the food and water team also asks you when he should start serving the first meal.

The first food and water serving should take place:

- \_\_\_\_a. As soon as the supplies have been inventoried and the food and water team has been selected.
- \_\_\_\_b. At about the time the next mealtime would normally fall.
- \_\_\_\_c. When the living group leaders indicate to you that the members of their groups are thirsty and/or hungry.
- \_\_\_\_d. When you feel that a majority of persons in the shelter are hungry.

\*\*\*\*\*

17. It is now 8:00 p.m. Radiological monitoring reveals that an area near the door of the shelter showed a reading a short while ago of about 4 R/hr. The reading does not seem to have increased since then.

What do you do about this situation?

- \_\_\_\_a. Ignore it. The radiation rate is not yet high enough to be of concern.
- \_\_\_\_b. Increase the shielding at the door by use of cases of supplies or other dense materials. Relocate people standing near the door to other parts of the shelter.
- \_\_\_\_c. Relocate people into sections of the building that are not part of the shelter, but that are far away from the shelter door.
- \_\_\_\_d. Abandon the shelter, and seek entry to the nearest shelter several blocks away.

- \_\_\_\_e. Have the shelter population vote on the appropriate measure to take.

\*\*\*\*\*

18. After fallout has begun to descend, a family of five people appears at the door of the shelter and pleads for admission. The head of the family says that they have been exposed to some radiation.

What is your decision in this situation?

- \_\_\_\_a. Let them come in.
- \_\_\_\_b. Let them come in if any other member of their family is among the occupants of the shelter.
- \_\_\_\_c. For the safety of the entire shelter, keep them out because the radiation they have received can be contagious and cause other people in the shelter to become ill.
- \_\_\_\_d. Let them come in if the radiation dose they have received is less than ten Roentgens.
- \_\_\_\_e. Let the shelter population vote on whether to let them in or not.

\*\*\*\*\*

19. Assuming that a decision has been made to let the family in, what is the first thing to do as they enter?

- \_\_\_\_a. Find out who they are and whether there are any other people outside.
- \_\_\_\_b. Monitor them for radioactivity and remove all particles of fallout from their persons and clothes.
- \_\_\_\_c. Find out whether they have any symptoms of radiation sickness.
- \_\_\_\_d. Give them a ration of food and water.
- \_\_\_\_e. Find out whether any members of the family have any special skills that would be useful in the shelter.

\*\*\*\*\*

20. It is now 9:30 p.m. You are having a meeting with the heads of the living groups to discuss shelter problems. Someone asks about sleep, specifically when "lights out" should be scheduled on the first night.

Your decision as to when to schedule "lights out" for sleeping on the first night is:

- \_\_\_\_\_a. At 11:00 p.m. sharp.
- \_\_\_\_\_b. No scheduled time. Let each individual decide when he should go to sleep.
- \_\_\_\_\_c. No scheduled time. Let each living unit vote on when its members want to go to sleep.
- \_\_\_\_\_d. Let the adult population decide, through majority vote, on a single time for "lights out" for the entire shelter.

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21. Because there are no beds, cots, or mattresses in the shelter, you and your staff decide that everyone will have to sleep on the floor. A question is asked about how to arrange people for sleeping on the floor.

Your decision about sleeping arrangements is to:

- \_\_\_\_\_a. Give each living unit an amount of floor space. Let people sleep with their living units.
- \_\_\_\_\_b. Let people in the shelter devise their own sleeping arrangements.
- \_\_\_\_\_c. Have all unmarried males sleep at one end of the shelter, all unmarried females at the other end, and family groups sleep in the middle.
- \_\_\_\_\_d. Have all males sleep at one end of the shelter and all females at the other end, with a partition of shelter supplies between the two groups.

\*\*\*\*\*

22. It is now 11:00 p.m. The level of radiation outside the shelter is approximately 100 Roentgens per hour. One telephone in the shelter has been discovered to be in working condition. A number of people who were separated from their families at the time they came to the shelter are becoming increasingly anxious about the fate of their loved ones.

What is your decision about the missing families?

- \_\_\_\_\_a. Call the emergency operations center of your local government and read them the list of separated family members.
- \_\_\_\_\_b. Wait until the emergency operations center calls your shelter. Then tell them that you have a list of missing family members.
- \_\_\_\_\_c. Let people take short trips to other nearby shelters to try and locate missing family members.
- \_\_\_\_\_d. Try to reach other shelters on the phone to exchange lists of missing persons.

\*\*\*\*\*

23. One of your responsibilities as a shelter manager is to see to it that people receive news about what is happening.

The best way to carry out this responsibility in your shelter is to:

- \_\_\_\_\_a. Conduct one regularly scheduled shelter-wide briefing every day, even though nothing much may have happened that day.
- \_\_\_\_\_b. Hold a shelter-wide briefing only when something important has happened. At other times, depend upon shelterees to pass news and information amongst themselves by word of mouth.
- \_\_\_\_\_c. Brief all group leaders once a day, and let them hold briefings for their own groups.
- \_\_\_\_\_d. Let individuals who want to know what is happening come to you directly with their specific questions whenever you are not busy with some other job.

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24. It is now 3:00 p.m. on the second day. The air-conditioning system in the basement is out of operation and cannot be repaired. Although there is no room thermometer in the shelter, it is obvious to you that the temperature and humidity are both getting high.



How can you detect when temperature has approached a dangerous level?

- \_\_\_\_\_ a. Wait for several people who have not shown previous symptoms to collapse of heat prostration.
- \_\_\_\_\_ b. Wait for approximately 10% of the shelter population to complain about the heat. If more than 20% of the people complain, the situation is dangerous.
- \_\_\_\_\_ c. Have the body temperatures of about 10% of the population checked at regular intervals. If there is a general rise of as much as 2° in body temperatures, the situation is dangerous.
- \_\_\_\_\_ d. Estimate the extent of the danger by the way the temperature seems to be affecting you personally.

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25. The following are some of the things that people might suggest be done to control the effects of high temperature in your shelter.

1. Open doors and windows.
2. Turn off all appliances.
3. Keep people busy to take their minds off the heat.
4. Give everyone twice as much water to drink as before.
5. Keep people as inactive as possible.
6. If there is a cooler portion of the shelter, give everyone a turn to spend some time there.
7. Let people take baths.
8. Abandon the shelter, and seek protection elsewhere.

Which of the above steps represent the most reasonable course of action for you to take in this shelter?

- \_\_\_\_\_ a. Step 8.
- \_\_\_\_\_ b. Steps 3, 4, 6. If this does not work, then try step 7.

\_\_\_\_\_c. Steps 2, 5, 6. If this does not work, then try step 1.

\_\_\_\_\_d. Steps 1, 2, 3, 4.

\_\_\_\_\_e. Steps 4, 5, 6. If this does not work, then try step 3.

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26. It is now 11:00 p.m. on the second day. Two persons are caught taking water from the water drums. It is discovered that in the past these persons have stolen approximately four gallons of water, which they drank themselves and gave to several of their friends. There has as yet not been any opportunity to replenish the shelter water supply, and the temperature remains at a high, but not dangerous, level.

Who should have the responsibility for deciding what, if anything, should be done to the offenders?

\_\_\_\_\_a. The entire shelter, voting as a body.

\_\_\_\_\_b. The head of the food and water team.

\_\_\_\_\_c. The shelter manager.

\_\_\_\_\_d. A jury, selected randomly from the adult shelter population.

\_\_\_\_\_e. The leaders of the living groups to which the offenders had been assigned.

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27. The offenders have broken no other shelter rules, and no other incidents of stealing supplies have taken place.

What, if anything, should be done to the two offenders?

\_\_\_\_\_a. They should be expelled from the shelter.

\_\_\_\_\_b. Their food and water rations should be taken away for two days.

\_\_\_\_\_c. Their heads should be shaved as a public example.

\_\_\_\_\_d. They should be isolated as much as possible from contact with other shelterees.

\_\_\_\_\_e. They should be warned not to break any other shelter rules, and put "on probation."

\*\*\*\*\*

28. It is now 11:00 a.m. on the third day. The radiation level outside the shelter is eight Roentgens per hour. The head of the supply team reports that there is very little water left because some of the water drums had not been filled before the attack. An emergency team is formed to go outside and bring in the needed supplies.

Given the current radiation reading, how long should the emergency team be instructed to remain outside?

- ☐ a. Not more than ten minutes.
- ☐ b. Less than an hour.
- ☐ c. Not more than three hours.
- ☐ d. Not more than six hours.
- ☐ e. As long as they have to.

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29. The emergency team has been exposed to fallout on their trip.

What is the most reasonable way to decontaminate them after they return?

- ☐ a. Have them put on a new set of clothes.
- ☐ b. Brush their clothes and exposed parts of the body thoroughly.
- ☐ c. Give them a thorough washing in an improvised bath or shower.
- ☐ d. Nothing will be effective in getting rid of fallout particles once they are on you.

\*\*\*\*\*

30. The shelter stay is in its fifth day. The external radiation level stands at two Roentgens per hour. Several families have announced their intention to leave and have begun to pack their belongings, in spite of your warnings about premature exit.

What is your response in this situation?

- ☐ a. Let them leave without further word.
- ☐ b. Provide them with an escort and some supplies.

- \_\_\_\_\_c. Explain in detail the dangers of leaving, and let them leave if they insist.
- \_\_\_\_\_d. Keep them in the shelter by force, if necessary.
- \_\_\_\_\_e. Let the shelter population vote on whether the families should leave or stay.

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31. The radiological team reports that the radiation levels in the area around the shelter are low enough for people to leave.

What is your decision on the basis of this information?

- \_\_\_\_\_a. Before you let anyone out, wait for a message from the President or his representative saying that hostilities are over.
- \_\_\_\_\_b. Try to phone the local emergency operations center and find out what radiation levels are in other parts of the community.
- \_\_\_\_\_c. Send out an emergency team to measure radiation levels in other parts of the community.
- \_\_\_\_\_d. Let everyone who wants to leave do so, now that radiation levels around the shelter are no longer dangerous.

## **LARGE SHELTER SCENARIO**

### **Description of the Shelter**

The shelter to which you have been assigned as the manager is a large one in the downtown center of a big city. It has a capacity of 3,000 people. This means that the Office of Civil Defense has determined that there is sufficient space for 3,000 people and has therefore provided food, sanitation kits, medical kits, radiological equipment, and water drums for 3,000 persons.

The shelter is located in a 16-story office building. The shelter does not consist of a single space, but rather of many spaces in the interior core of the building, and in the basement. Besides the basement, there are shelter spaces on every floor from the fourth to the eighth, and also on floors 12 and 13. The ninth, tenth, and eleventh floors are not good shelter spaces, because they adjoin the roofs of nearby buildings, which could be dangerous if fallout were to be deposited on the roofs of the adjoining buildings.

The shelter spaces consist of the inside corridors on each floor. There are some emergency supplies provided by the Office of Civil Defense in a small storeroom on each floor, but most of the supplies are located in the basement shelter.

The building in which the shelter is located is mainly rented by several big companies that employ a large number of office workers (both male and female). There are also a number of smaller business offices, as well as several retail stores on the ground level.

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It is 4:15 on a Friday afternoon in late spring. The temperature is 82°. Many of the office workers are beginning to clean off their desks in anticipation of the end of the working day at 4:45 p.m.

### Review Questions

1. The warning siren to take shelter sounds at 4:15 p.m., while you are on a coffee break. After much confusion, the floors of the shelter start to fill. When you arrive at the management area of the shelter at 4:25, you learn that people are pouring into the lobby, basement, and upper floors of the building. Most of the people are occupants of the building; some are passersby.

You are interested in determining the number of persons already in the building and their location.

The best way to determine the number and location of people is:

- \_\_\_\_\_ a. Go from floor to floor and count the people yourself.
- \_\_\_\_\_ b. Appoint people on each floor to count.
- \_\_\_\_\_ c. Ignore the number, let everyone in and then count.
- \_\_\_\_\_ d. Distribute registration forms to everyone.

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2. It is 4:30 p.m. Approximately 3,000 people are in the shelter areas. There are still quite a few people trying to enter. There is another shelter nearby on the same street.

What do you do about the requests of these people to enter the shelter?

- \_\_\_\_\_ a. Try to close the doors when 3,000 people have entered and direct people outside to other shelters.
- \_\_\_\_\_ b. Count the remaining number of people, decide how many extras can be taken in.
- \_\_\_\_\_ c. Find out which are members of families in the shelter and let them in.
- \_\_\_\_\_ d. Let everyone into the shelter.

\*\*\*\*\*

3. One of the most important of your initial duties is to communicate to the shelter population the fact that you are the manager assigned to this shelter. People are walking around or standing in small groups in a dazed or bewildered state, waiting for some kind of

direction from shelter management. You wish to announce that you are the shelter manager.

The best way to do this is:

- \_\_\_\_\_a. Go to every floor, announce that you are the shelter manager, and select a deputy manager on each floor.
- \_\_\_\_\_b. Select mature adults from your floor to go to all floors and announce that you have appointed them to organize that floor.
- \_\_\_\_\_c. Send messengers to each floor to let them know that there is a shelter manager for the building and they should begin to organize their floor and wait for directions.
- \_\_\_\_\_d. Have messengers find one person on each floor to go to the shelter manager for briefing on how to organize their floor.

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4. After assuming command of the shelter and communicating your command position to the shelterees, you must select deputies to help you organize and operate the shelter.

By what means would you select your deputies?

- \_\_\_\_\_a. Select friends or people you know who have management experience.
- \_\_\_\_\_b. Ask for volunteers with management experience.
- \_\_\_\_\_c. Have registration forms filled out and assign people from the information on these forms.
- \_\_\_\_\_d. Select people who have had management experience with companies that occupied the building in which the shelter is located.

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5. Another decision that has to be made concerns the number of different sets of management deputies needed in a shelter like yours.

How many sets of deputies should you appoint?

- \_\_\_\_\_a. Every floor of the shelter should have its own deputies to oversee operations.

- \_\_\_\_\_b. Only one set of management deputies is needed for the entire shelter.
- \_\_\_\_\_c. There should be three full sets of management deputies; one for floors four to eight; one for floors 12 to 13; one for the basement.
- \_\_\_\_\_d. There should be a Deputy for Technical Operations on each floor. Only one full set of the other management aides is needed for the entire shelter.
- \_\_\_\_\_e. There should be one set of deputies for every 1,000 shelterees.

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6. In addition to selecting deputies to help you in organizing the shelter, you will also have to select teams of people to carry out the many important tasks that have to be accomplished in the shelter.

Which of the following represents the order in which you would assign the shelter jobs that have to be done immediately?

- \_\_\_\_\_a. (1) Food and water (2) Sanitation  
(3) Radiological (4) Communication
- \_\_\_\_\_b. (1) Communication (2) Food and water  
(3) Radiological (4) Safety
- \_\_\_\_\_c. (1) Medical (2) Radiological  
(3) Food and water (4) Training
- \_\_\_\_\_d. (1) Radiological (2) Safety  
(3) Sanitation (4) Food and water

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7. Assuming that you know the occupations of the people in the shelter, who would you select to be the head of each of the following teams?

- a. For the head of the radiological team (RADEF team):
  - \_\_\_\_\_ (1) TV repairman.
  - \_\_\_\_\_ (2) High school science teacher.
  - \_\_\_\_\_ (3) Mechanical engineer.
  - \_\_\_\_\_ (4) Graduate student majoring in physics.



b. For the head of the food and water team:

- \_\_\_\_(1) Housewife.
- \_\_\_\_(2) Butcher.
- \_\_\_\_(3) School teacher.
- \_\_\_\_(4) Retail food store manager.

c. For the head of the safety team:

- \_\_\_\_(1) Policeman.
- \_\_\_\_(2) Building custodian.
- \_\_\_\_(3) Teacher.
- \_\_\_\_(4) Boy Scout leader.

\* \* \* \* \*

8. In addition to setting up teams to perform shelter tasks, you must also see to it that the shelter population is divided into living groups (also referred to as community groups or manageable units).

At the present time there are close to 3,000 persons in your shelter; 1,200 in the basement and about 250 on each of the seven upper floors. Since the basement is without any means of communication to the upper floors, it will be considered a separate unit for organizational purposes.

What is the best organization of living units for the shelter spaces on the seven upper floors? Do not include the basement space.

- \_\_\_\_a. Divide the population into seven groups of 250 people each; further divide each group of 250 into five groups of 50 people each; divide each group of 50 into five groups of ten each.
- \_\_\_\_b. Divide the population into seven groups of 250 persons each; then divide each group of 250 persons into ten groups of 25 persons each.
- \_\_\_\_c. Divide the population into two groups of 875 persons each; further divide each group of 875 into five groups of 175 persons each; divide each group of 175 into five groups of 35 persons each.

- \_\_\_\_\_d. Divide the population into seven groups of 250 people each; further divide each group of 250 into five groups of 50 people each.

\* \* \* \* \*

9. a. How do you select leaders for the largest living group that you have in this shelter?

- \_\_\_\_\_ (1) Appoint people you know.  
\_\_\_\_\_ (2) Ask for adult male volunteers.  
\_\_\_\_\_ (3) Appoint persons who have reported management experience on their registration forms.  
\_\_\_\_\_ (4) Let the members of the group select their own leaders.

- b. How do you select leaders for the smallest living groups that you have established?

- \_\_\_\_\_ (1) Appoint people you know.  
\_\_\_\_\_ (2) Ask for adult male volunteers.  
\_\_\_\_\_ (3) Appoint persons who have reported management experience on their registration forms.  
\_\_\_\_\_ (4) Let the members of the group select their own leaders.

\* \* \* \* \*

10. a. Which of the following represents the best way to assign people to the largest living groups?

- \_\_\_\_\_ (1) Assign people on the basis of their location in the shelter, keeping groups of families and friends together.  
\_\_\_\_\_ (2) Assign people on the basis of the jobs they have been given to perform in-shelter; that is, keep all people with the same task team assignment in the same unit.  
\_\_\_\_\_ (3) Let people organize into living groups by themselves; you just tell them how large the group should be.  
\_\_\_\_\_ (4) On the basis of information on their registration form, you assign people whom you think will get along well with each other.

b. Which of the following represents the best way to assign the shelter population to the smallest living groups?

- \_\_\_\_\_ (1) Assign them on the basis of their location in the shelter.
- \_\_\_\_\_ (2) Let them form their own groups, after being told how big the groups should be.
- \_\_\_\_\_ (3) Assign them to groups on the basis of information they have indicated on their registration form.
- \_\_\_\_\_ (4) Let the leaders of the largest living groups decide which people they want in each of the smaller living groups for which they are responsible.

\*\*\*\*\*

11. It is now 5:45 p.m. A message from the Emergency Broadcast System is picked up on a portable radio that someone has brought into the shelter with him. The message says that radioactive fallout is expected in your area within 20 minutes. It is your responsibility to see to it that the protection against radiation in your shelter is as great as it can be.

Some of the possible actions you can take are:

1. Increase shielding around all shelter openings by stacking food and water cans against them.
2. Stack movable metal lockers against doors and windows.
3. Cover any places through which fallout might enter the shelter; for example, cover a broken window with cardboard.
4. Go outside and find concrete blocks, rocks, and other dense materials to build up shielding at windows and other openings.
5. Wait until fallout arrives and see what kind of problem it is.

Which of the following sets of immediate actions represents the most practical course you can follow in this shelter in regard to radiological protection?

- \_\_\_\_\_ a. All of the steps listed above except 5.

- \_\_\_\_b. Only step 5.
- \_\_\_\_c. Steps 1, 2, 3.
- \_\_\_\_d. Step 5 first, then steps 1, 2, 3.
- \_\_\_\_e. Step 4 first, then if enough time steps 1, 2, 3.

\*\*\*\*\*

12. Your primary source of information about fallout radiation is the radiological team (RADEF team) using the radiological instruments stocked in the shelter.

When should the radiological team begin to monitor the shelter for the presence of fallout?

- \_\_\_\_a. As soon as the radiological team is selected and briefly instructed in the operation of the equipment.
- \_\_\_\_b. Immediately after a radio, phone, or other type of message indicating that fallout is approaching the area.
- \_\_\_\_c. After the radiological team has had a chance to thoroughly study the equipment and learn monitoring procedures thoroughly.
- \_\_\_\_d. After an observer reports that fallout is descending outside the shelter.

\*\*\*\*\*

13. It is now 6:00 p.m. Fallout has not yet begun to descend. An inventory of all the supplies stocked in the shelter has been made. The inventory reveals that the only supplies actually in the shelter are those that have been stocked by the Office of Civil Defense. However, in the building, just outside the shelter area, there are items that would be useful to bring into the shelter. The items that are available in the building outside the shelter are:

1. Food from vending machines.
2. Fire extinguishers.
3. Flashlights.
4. Drinks from vending machines.
5. Blankets.
6. First aid kits.
7. Books and magazines.
8. Liquor.

- 9. An AM-FM radio.
- 10. Pencils and paper.
- 11. Hand tools (hammer, saw, etc.)
- 12. Mops, brooms, dustpans.

Which of the following groups of items contains the supplies you would most want to bring into the shelter?

- \_\_\_\_\_a. Items 2, 3, 5, 9, 11.
- \_\_\_\_\_b. Items 1, 3, 7, 9, 10.
- \_\_\_\_\_c. Items 1, 4, 5, 6, 8.
- \_\_\_\_\_d. Items 2, 3, 6, 10, 12.

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14. How would you go about getting the supplies you selected in the previous question into the shelter area?

- \_\_\_\_\_a. Bring them yourself.
- \_\_\_\_\_b. Personally recruit a group of volunteers and lead them yourself.
- \_\_\_\_\_c. Appoint able-bodied males who are located near you.
- \_\_\_\_\_d. Have your deputy recruit volunteers familiar with the building and let him tell them what to bring back.

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15. A teenage boy has brought a portable radio with him but does not want to contribute it for use by the manager to communicate with the outside world.

How do you handle this situation?

- \_\_\_\_\_a. Have the security team confiscate the radio from its owner.
- \_\_\_\_\_b. Have friends of the owner try to talk him into volunteering the radio.
- \_\_\_\_\_c. Let the owner become a member of the communication team, with the job of listening for emergency messages.
- \_\_\_\_\_d. Let the shelter group vote on what to do about the situation.

- \_\_\_\_\_e. Let the owner retain his radio, while you try to find other ways of communicating with the outside.

\*\*\*\*\*

16. The deputy in charge of supplies reports to you that the food supplies have been inventoried. He wants to know where he should put the food and how he should distribute it.

What is the best way of arranging food supplies in your shelter?

- \_\_\_\_\_a. Have all the supplies located in one central area in the shelter; have the food team heads pick up the supplies they need from the central storage daily, and distribute them to the people.
- \_\_\_\_\_b. Let each living group keep a stock of the food that it will need.
- \_\_\_\_\_c. Set up seven supply storage areas, one on each floor, and let each person get his supplies directly from the storage area on the floor.
- \_\_\_\_\_d. Set up seven supply storage areas, one on each floor of the shelter, and let the food team on each floor pick up its supplies from that point.

\*\*\*\*\*

17. The deputy in charge of food and water wants to know how much food and water should be given to each person daily.

The best plan for rationing food and water in your shelter is:

- \_\_\_\_\_a. Give everybody 2,000 calories and two quarts of water a day for the first couple of days. Cut down on the ration if radiation levels suggest that a long shelter stay will be necessary.
- \_\_\_\_\_b. Let the group vote on the amount of food and water it should get every day.
- \_\_\_\_\_c. Give adult and teenage males 1,500 calories per day, women and children 750 calories per day, and everyone one and a half

quarts of water per day, until it is possible to figure out how long you will have to remain in the shelter.

- \_\_\_\_\_d. Give everyone about 700 calories and one quart of water per day, estimating a two-week period in the shelter. Increase the ration if it appears likely that a shorter shelter stay is possible.

\*\*\*\*\*

18. The deputy in charge of food and water also asks you when he should start serving the first meal.

The first food and water serving should take place:

- \_\_\_\_\_a. As soon as the supplies have been inventoried and the food and water team has been selected.
- \_\_\_\_\_b. At the time the next mealtime would normally fall.
- \_\_\_\_\_c. When the living group leaders indicate to you that the members of their groups are thirsty and/or hungry.
- \_\_\_\_\_d. When you feel that a majority of persons in the shelter are hungry.

\*\*\*\*\*

19. It is now 8:00 p.m. Radiological monitoring reveals that part of floor eight, nearest roofs of adjoining buildings, shows a reading of four Roentgens per hour.

What do you do about this situation?

- \_\_\_\_\_a. Ignore it. The radiation rate is not yet high enough to be of concern.
- \_\_\_\_\_b. Increase the shieldings at that area by use of cases of supplies or other dense materials. Relocate people standing near the area to other parts of the shelter.
- \_\_\_\_\_c. Relocate people into sections of the building that are not part of the shelter, but that are as far away from the eighth floor as possible.

\*\*\*\*\*

20. After fallout has begun to descend, about 100 persons appear at the fourth floor and ask for admission.

One member of the group says that they have been exposed to some radiation.

What is your decision in this situation?

- ☐ a. Let them come in and locate them in areas with some radiation protection.
- ☐ b. Let those people in who have family members already among the occupants of the shelter.
- ☐ c. For the safety of the entire shelter, keep them out because the radiation they have received can be contagious and cause other people in the shelter to become ill.
- ☐ d. Let them come in if the radiation dose they have received is less than ten Roentgens.
- ☐ e. Let the shelter population vote on whether to let them in or not.

\*\*\*\*\*

21. Assuming that a decision has been made to let the people in, what is the first thing to do as they enter?

- ☐ a. Find out who they are and whether there are any other people outside.
- ☐ b. Monitor them for radioactivity and remove all particles of fallout from their persons and clothing.
- ☐ c. Find out whether they have any symptoms of radiation sickness.
- ☐ d. Give them a ration of food and water.
- ☐ e. Find out whether any members of the group have any special skills that would be useful in the shelter.

\*\*\*\*\*

22. It is now 9:30 p.m. You are having a meeting with your deputies to discuss shelter problems. Someone asks about sleep, specifically when "lights out" should be scheduled on the first night.

Your decision as to when to schedule "lights out" for sleeping on the first night is:

- ☐ a. At 11:00 p.m. sharp.



- \_\_\_\_\_b. No scheduled time. Let each individual decide when he should go to sleep.
- \_\_\_\_\_c. No scheduled time. Let each living unit vote on when its members want to go to sleep.
- \_\_\_\_\_d. Let the adult population on each floor decide, through majority vote, on a single time for "lights out" for the entire floor.

\*\*\*\*\*

23. Because there are no beds, cots, or mattresses in the shelter, you and your staff decide that everyone will have to sleep on the floor. A question is asked about how to arrange people for sleeping on the floor.

Your decision about sleeping arrangements is to:

- \_\_\_\_\_a. Give each living unit an amount of floor space. Let people sleep with their living units.
- \_\_\_\_\_b. Let people in the shelter devise their own sleeping arrangements.
- \_\_\_\_\_c. On each floor of the shelter, have all unmarried males sleep at one end of the floor, all unmarried females at the other end, and family groups sleep in the middle.
- \_\_\_\_\_d. On each floor of the shelter, have all males sleep at one end of the floor and all females at the other end, with a partition of shelter supplies between the two groups.

\*\*\*\*\*

24. It is now 11:00 p.m. The level of radiation outside the shelter is 100 Roentgens and still rising. One telephone in the shelter has been discovered to be in working condition. A number of people who were separated from their families at the time they came to the shelter are becoming increasingly anxious about the fate of their loved ones.

What is your decision about the missing families?

- \_\_\_\_\_a. Call the emergency operations center of your local government and read them the list of separated family members.

- \_\_\_\_\_b. Wait until the emergency operations center calls your shelter. Then tell them that you have a list of missing family members.
- \_\_\_\_\_c. Let people take short trips to other nearby shelters to try and locate missing family members.
- \_\_\_\_\_d. Try to reach other shelters on the phone to exchange lists of missing persons.

\*\*\*\*\*

25. It is important that people receive news about what is happening and that they be reassured that shelter management is active in their behalf.

The best way to carry out this responsibility in your shelter is to:

- \_\_\_\_\_a. Personally conduct one regularly scheduled briefing every day, for every floor of the shelter, even though nothing much may have happened that day.
- \_\_\_\_\_b. Personally hold a briefing for every floor only when something important has happened. At other times, depend upon shelterees to pass news and information amongst themselves by word of mouth.
- \_\_\_\_\_c. Personally brief all group leaders of each floor once a day, and let them hold briefings for their own groups.
- \_\_\_\_\_d. Let individuals who want to know what is happening come to you or your deputies directly with their specific questions whenever you or they are not busy with some other job.

\*\*\*\*\*

26. It is now 3:00 p.m. on the second day. Shelter temperature and humidity feel extremely high. However, there is no room thermometer to give any indication of the exact temperature in the shelter.

How can you detect when temperature has approached a dangerous level?

- \_\_\_\_\_a. Wait for several people who have not shown previous symptoms to collapse of heat prostration.

- \_\_\_\_b. Wait for approximately 10% of the people on any one floor to complain about the heat. If more than 20% of the people complain, the situation is dangerous.
- \_\_\_\_c. Have the body temperatures of about 10% of the population checked at regular intervals. If there is a general rise of as much as 2° in body temperatures, the situation is dangerous.
- \_\_\_\_d. Estimate the extent of the danger by the way the temperature seems to be affecting you personally.

\* \* \* \* \*

27. The following are some of the things that people might suggest be done to control the effects of high temperature in your shelter.

1. Open doors and windows.
2. Turn off all appliances.
3. Keep people busy to take their minds off the heat.
4. Give everyone twice as much water to drink as before.
5. Keep people as inactive as possible.
6. If there is a cooler portion of the shelter, give everyone a turn to spend some time there.
7. Let people take baths.
8. Abandon the shelter, and seek protection elsewhere.

Which of the above steps represent the most reasonable course of action for you to take in this shelter?

- \_\_\_\_a. Step 8.
- \_\_\_\_b. Steps 2, 4, 6. If this does not work, then try step 7.
- \_\_\_\_c. Steps 2, 5, 6. If this does not work, then try step 1.
- \_\_\_\_d. Steps 1, 2, 3, 4.

- \_\_\_\_e. Steps 4, 5, 6. If this does not work, then try step 3.

\*\*\*\*\*

28. It is now 11:00 p.m. on the second day. Two persons are caught taking water from the water drums on the fifth floor. It is discovered that in the past these persons have stolen approximately ten gallons of water, which they drank themselves and gave to several of their friends. There has as yet not been any opportunity to replenish the shelter water supply and the temperature remains at a high, but not dangerous level.

Who should have the responsibility for deciding what, if anything, should be done to the offenders?

- \_\_\_\_a. All the people on the fifth floor, voting as a body.
- \_\_\_\_b. The head of the food and water team.
- \_\_\_\_c. The shelter manager
- \_\_\_\_d. A jury, selected randomly from the adult shelter population.
- \_\_\_\_e. The leaders of the living groups to which the offenders had been assigned.

\*\*\*\*\*

29. The offenders have broken no other shelter rules, and no other incidents of stealing supplies have taken place.

What, if anything, should be done to the two offenders?

- \_\_\_\_a. They should be expelled from the shelter.
- \_\_\_\_b. Their food and water rations should be taken away for two days.
- \_\_\_\_c. Their heads should be shaved as a public example.
- \_\_\_\_d. They should be isolated as much as possible from contact with other shelterees.
- \_\_\_\_e. They should be warned not to break any other shelter rules, and put "on probation."

\*\*\*\*\*

30. It is now 11:00 a.m. on the third day. The radiation level outside the shelter is eight Roentgens per

hour. The head of the supply team reports that there is very little water left. An emergency team is formed to go outside and bring in the needed supplies.

Given the current radiation reading, how long should the emergency team be instructed to remain outside?

- ☐ a. Not more than ten minutes.
- ☐ b. Less than an hour.
- ☐ c. Not more than three hours.
- ☐ d. Not more than six hours.
- ☐ e. As long as they have to.

\*\*\*\*\*

31. The emergency team has been exposed to fallout on their trip.

What is the most reasonable way to decontaminate them after they return?

- ☐ a. Have them put on a new set of clothes.
- ☐ b. Brush their clothes and exposed parts of the body thoroughly.
- ☐ c. Give them a thorough washing in an improvised bath or shower.
- ☐ d. Nothing will be effective in getting rid of fallout particles once you have them on you.

\*\*\*\*\*

32. The shelter stay is in its fifth day. The radiation level stands at two Roentgens per hour. Several families have announced their intention to leave and have begun to pack their belongings, in spite of your warnings about premature exit.

What is your response in this situation?

- ☐ a. Let them leave without further word.
- ☐ b. Provide them with an escort and some supplies.
- ☐ c. Explain the dangers of leaving in detail, and let them leave if they insist.
- ☐ d. Keep them in the shelter by force, if necessary.

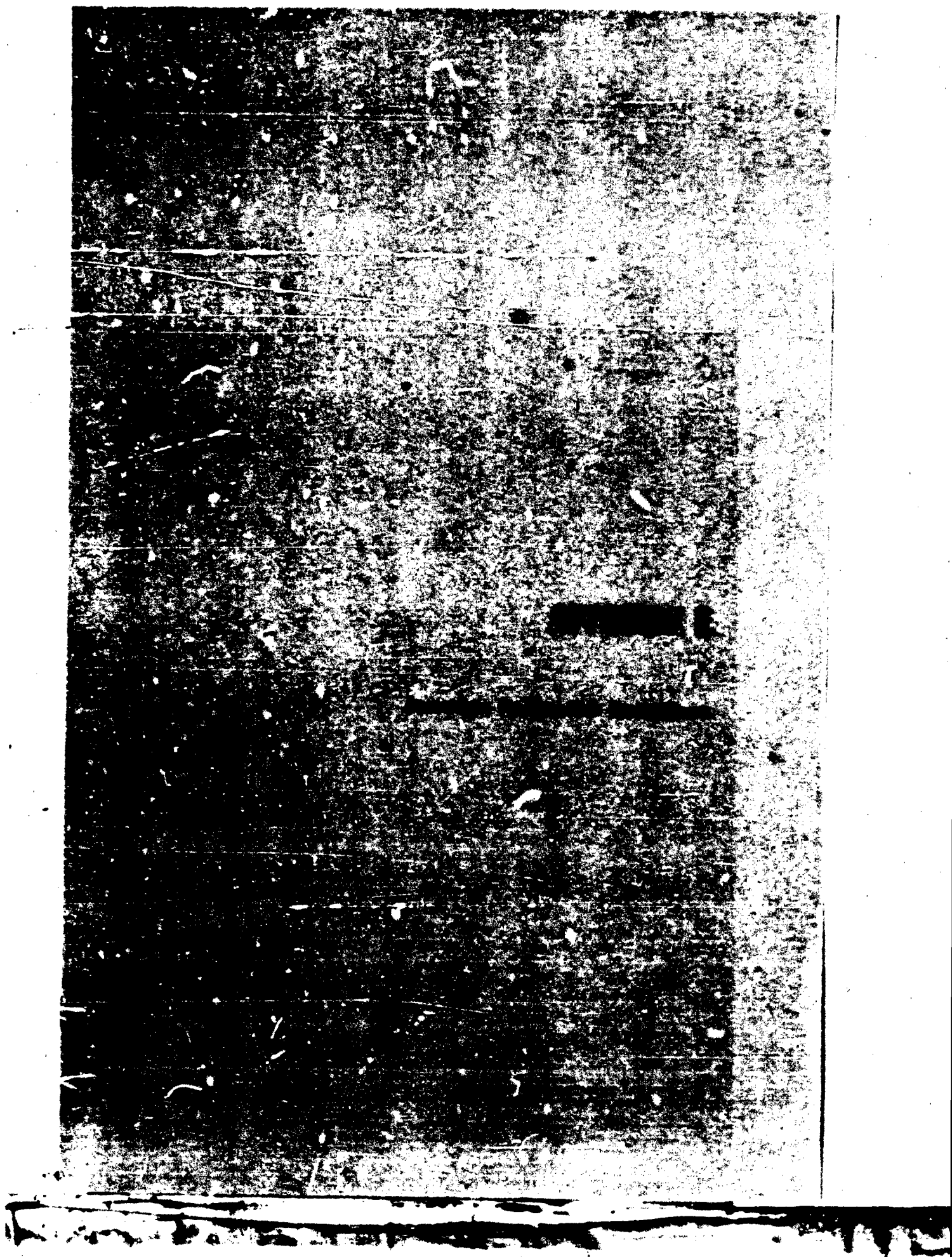
- \_\_\_\_ e. Let the shelter population vote on whether the families should leave or stay.

\*\*\*\*\*

33. The radiological team reports that the radiation levels in the area around the shelter are low enough for people to leave.

What is your decision on the basis of this information?

- \_\_\_\_ a. Before you let anyone out, wait for a message from the President or his representative saying that hostilities are over.
- \_\_\_\_ b. Try to phone the local emergency operations center and find out what radiation levels are in other parts of the community.
- \_\_\_\_ c. Send out an emergency team to measure radiation levels in other parts of the community.
- \_\_\_\_ d. Let everyone who wants to leave do so, now that radiation levels around the shelter are no longer dangerous.



## **ANSWERS TO SHORT-ANSWER REVIEW QUESTIONS**

### **Chapter 1**

1. physical survival; mental well being
2. assume command rapidly; demonstrate authority; delegate authority; refrain from overinvolvement; establish a priority of actions; provide an example for shelteree behavior; recognize the changing needs of the shelter population; keep people informed; recognize the importance of motivation
3. civilian; military
4. limited
5. different

### **Chapter 2**

1. as many physically able people as possible
2. easy recognition of management personnel; identification of other shelterees by name
3. using any available paper or by verbal means
4. small
5. 500
6. recreation; training

### **Chapter 3**

1. requested (not confiscated)
2. shelter log; communications log; radiation monitoring log; shelteree radiation exposure record; medical records; supply status summary
3. pocket knives; nail clippers and files; pens, pencils, writing pads; cosmetics; pen-lights; non-prescription medicines such as aspirins; hair pins; clips; tie clips; portable radios; lighters and matches; handkerchiefs; scarves; belts; ties; paper-back books
4. decentralized
5. purposes in addition to those for which the item was originally intended

### **Chapter 4**

1. poor
2. the shelter manager
3. a planning basis; predictability in shelter life



4. noise and other distractions; optimum use of common time
5. behavior that jeopardizes the survival chances of shelterees

#### **Chapter 5**

1. two weeks
2. about 600
3. denser
4. an average
5. distance shielding; barrier shielding
6. survey meter
7. sand or dirt
8. nausea; vomiting

#### **Chapter 6**

1. hastily constructed barriers
2. firestorm
3. white

#### **Chapter 7**

1. flame damage; effects of smoke; toxic fumes; oxygen depletion; panic
2. fire watch
3. removing the fuel; taking away the air; cooling the burning material

#### **Chapter 8**

1. humidity; air movement
2. human physical activity; use of appliances; evaporation
3. carbon dioxide; oxygen
4. combustion; human metabolism; open flames; smoke or exhaust
5. psychological or emotional

#### **Chapters 9 and 10**

1. approximately 700; two weeks
2. bulgur wafer; wheat biscuit; wheat-corn cracker

3. 5 - 6
4. 4 or 5 days
5. one quart per day; 14 days
6. breast milk of the mother
7. sanitation commode

#### **Chapter 11**

1. toilet; noise; light
2. availability of space
3. head-to-toe
4. placing cardboard or other materials between the sleeper and the floor
5. sex and marital status

#### **Chapter 12**

1. health
2. an adequate drinking water supply
3. steel water drums
4. wrappers; cardboard boxes; metal tins
5. sanitation team; medical team; food and water handling team

#### **Chapter 13**

1. the immediate dosage he requires
2. minor injuries and illness
3. self-care
4. pulse or heartbeat; 20

#### **Chapter 14**

1. fire; temperature; carbon dioxide
2. medical care
3. flourescent; incandescent
4. venting the exhaust; heat generation; fuel as a fire hazard; radioactivity in generator area; noise

#### **Chapter 15**

1. Emergency Broadcast System; announced frequencies of the specially selected EBS stations
2. management
3. once daily

4. the manager feels it will be worthwhile and shelterees request it
5. evaluated; management staff

#### Chapter 16

1. newspapers; magazines; cardboard for writing paper; lipsticks and other cosmetic sticks for crayons; magazine rolled up for a megaphone; cardboard for bulletin board
2. slow; major points
3. channel the energies of children

#### Chapter 17

1. phenobarbital
2. a brief interview with the person in need of aid
3. adults
4. effective leadership

#### Chapter 18

1. infants; the ill and injured; emotionally disturbed
2. small group games; group singing; spectator entertainments; free-time quiet activities
3. the liberation of heat
4. voluntary; non-denominational

#### Chapter 19

1. operational readiness
2. are easy to monitor and inventory; remain in good condition; are safe from unauthorized use; can be rapidly brought into the shelter (if they must be stored outside the shelter)
3. population movement into the shelter; shelter resources; shelter organization; schedules; emergency procedures
4. tested; operational exercises

#### Chapter 20

1. removal of waste and garbage; burial of the dead; relocation of the sick and injured to available hospitals; transfer of problem shelterees to appropriate agencies
2. sleeping and eating
3. leadership

## ANSWERS TO OVER-ALL REVIEW QUESTIONS

The answers to the problems posed in the review scenarios represent the consensus of opinion of a number of experts on shelter management. Because of the great diversity in shelter types, likely attack conditions, and population characteristics, it is possible for more than one answer to be correct, given certain sets of circumstances. Where the experts were divided in their opinions about the solution to a specific problem, multiple answers are given in the list below. However, multiple answers have not been systematically considered and analyzed, since it is beyond the scope of this introductory text to consider all the possible variations in the shelter system that call for modifications in management guidance.

### Small-Shelter Questions

- |             |          |
|-------------|----------|
| 1. b, d     | 14. a    |
| 2. d        | 15. d    |
| 3. c        | 16. b, c |
| 4. d        | 17. b    |
| 5. c        | 18. a    |
| 6. a. (2)   | 19. b    |
| b. (4)      | 20. d    |
| c. (1)      | 21. c    |
| 7. c        | 22. b    |
| 8. a. (3)   | 23. a    |
| b. (4)      | 24. c    |
| 9. a. (1)   | 25. c    |
| b. (4), (2) | 26. c    |
| 10. c, a    | 27. d    |
| 11. a       | 28. b    |
| 12. a       | 29. b    |
| 13. c       | 30. c    |
|             | 31. b    |

### Large-Shelter Questions

- |             |          |
|-------------|----------|
| 1. b        | 15. c    |
| 2. a        | 16. d    |
| 3. b        | 17. d    |
| 4. d        | 18. b, c |
| 5. a        | 19. b    |
| 6. d        | 20. a    |
| 7. a. (2)   | 21. b    |
| b. (4)      | 22. d    |
| c. (1)      | 23. c    |
| 8. a        | 24. b    |
| 9. a. (3)   | 25. c    |
| b. (4)      | 26. c    |
| 10. a. (1)  | 27. c    |
| b. (4), (2) | 28. c    |
| 11. c, a    | 29. e    |
| 12. a       | 30. b    |
| 13. a       | 31. b    |
| 14. d       | 32. c    |
|             | 33. b    |

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<p>This volume has been prepared for use as a basic textbook for training shelter managers and other key members of the shelter staff. The training content is presented on a general level, so that the materials are applicable to a wide range of shelter types. Specific solutions to problems of individual shelters are best dealt with in the classroom lectures and discussions that comprise the shelter management training course. The text emphasizes management guidance for the period of shelter occupancy. It does not deal extensively with pre- or post-shelter management responsibilities or the more technical aspects of equipment operation and maintenance.</p> <p>The text is divided into seven parts: (1) an overview of shelter management; (2) organization of various aspects of the shelter system, including the shelter population, shelter resources, and activities and patterns of living; (3) protection against environmental threats, including radiological protection, other weapon effects, and safety; (4) providing for basic needs, such as atmosphere and temperature control, water, food, sleep, sanitation, and medical care; (5) support operations, including illumination and power, communication, and training; (6) enhancing adjustment to shelter living through psychological support, and religious, recreational, and service activities; and (7) a brief section on pre- and post-occupancy management responsibilities.</p>		

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